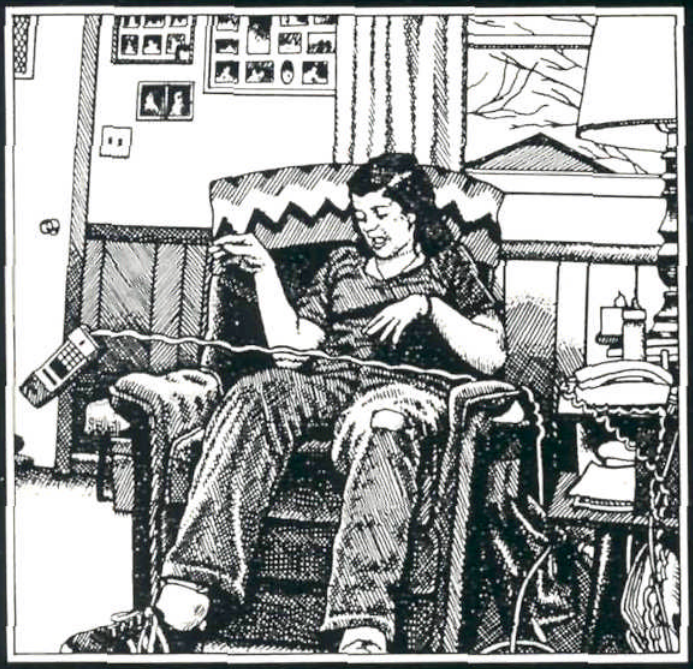
# the Skeptical Inquirer

## Columbus Poltergeist Case
## Photos, Film, and Flim-Flam



Moon and Murder: It's Moonshine
Investigating the Image of Guadalupe
UFOs and Radar / Phrenology and Gullibility
Astrology Disclaimer / Animal Senses

VOL. IX NO. 3 / SPRING 1985 $5.00
Published by the Committee for the Scientific Investigation of Claims of the Paranormal

the Skeptical Inquirer

THE SKEPTICAL INQUIRER is the official journal of the Committee for the Scientific Investigation of Claims of the Paranormal.

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Subscriptions, change of address, and advertising should be addressed to: THE SKEPTICAL INQUIRER, Central Park Station, Box 229, Buffalo, NY 14215-0229. Old address as well as new are necessary for change of subscriber's address, with six weeks advance notice.

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Subscription Rates: Individuals, libraries, and institutions, $18.00 a year; back issues, $5.00 each (vol. 1, no. 1 through vol. 2, no. 2, $7.50 each).

**Postmaster:** THE SKEPTICAL INQUIRER is published quarterly. Spring, Summer, Fall, and Winter. Printed in the U.S.A. Second-class postage paid at Buffalo, New York, and additional mailing offices. Send changes of address to THE SKEPTICAL INQUIRER, Central Park Station, Box 229, Buffalo, NY 14215-0229.

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Journal of the Committee for the Scientific Investigation of Claims of the Paranormal
Vol. IX, No. 3 ISSN 0194-6730 Spring 1985

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# News and Comment

## CSICOP's Call for a Disclaimer On Newspaper Astrology Columns

*The following astrological forecasts should be read for entertainment value only. Such predictions have no reliable basis in scientific fact.*

THE COMMITTEE for the Scientific Investigation of Claims of the Paranormal, publisher of the SKEPTICAL INQUIRER, has proposed that every newspaper astrology column carry the disclaimer above.

At a well-covered news conference at the California Academy of Sciences on November 9, preceding the start of CSICOP's 1984 conference, "Paranormal Beliefs: Scientific Facts and Fictions," Committee chairman Paul Kurtz issued a news release and statement asking all 1,200 newspapers in the United States that publish astrology columns to carry such a disclaimer.

Two weeks later, CSICOP mailed a letter to all U.S. newspapers, calling on them to publish the disclaimer. The letter was accompanied by a 4-page article written by Kurtz and astronomer Andrew Fraknoi, executive officer of the Astronomical Society of the Pacific. Entitled "Scientific Tests of Astrology Do Not Support Its Claims," it outlined the scientific perspective on astrology and summarized a few of the tests that have shown the claims of astrology lacking in any merit. (See pp. 210-211 for the text of this article.)

Both the news release and the letter said CSICOP, "an organization representing scientists, scholars, and skeptics worldwide, deplores the widespread uncritical acceptance of astrology by the public."

It referred to the recent Gallup poll (*SI*, Winter 1984-85, p. 113) reporting that belief in astrology among young people is growing—40 percent in 1978 compared with 55 percent in 1984.

"America is the most advanced scientific and technological society in the world," said Kurtz. "If the U.S. is to maintain this standing, it is essential that young people develop an understanding of the physical universe based upon reliable scientific evidence. It is unfortunate when people attempt to guide their lives by relying on outdated mythologies. A number of scientific tests have clearly shown that astrology has little or no empirical support for its

claims. In particular, astrological columns, charts, and horoscopes carried in newspapers are pure fiction."

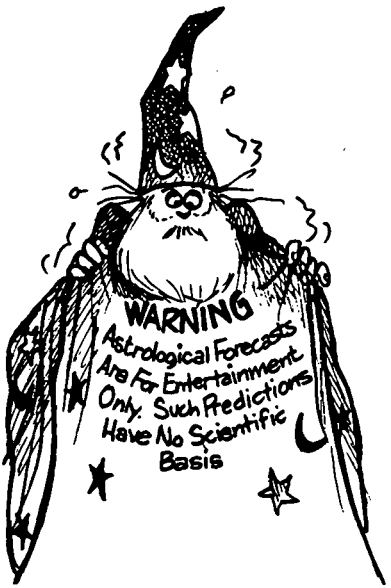
Added Fraknoi, who helped arrange the news conference: "Scientific literacy is essential for future generations, and the belief in pseudoscience tends to undermine the efforts of scientists and educators to improve the public understanding of science in this country."

Kurtz concluded: "In our view, newspapers have a responsibility to their readers to present an accurate picture of the world as scientists now understand it. Much the same as we label packets of cigarettes as dangerous to health, astrology columns should carry a proper label concerning their contents."

Most newspapers admittedly consider the horoscope columns an entertainment or reader-service feature. In answer to reporters' questions at the news conference, Fraknoi and others noted there was a darker side to it all. There are cases in which decisions affecting people's lives are made by others based on whether their astrological "sign" is correct. Some employers, for instance, use an applicant's astrological sign as a factor in hiring. Robert Steiner of the Bay Area Skeptics denounced such uses of astrology as a form of bigotry based on accidents of birth.

The disclaimer call was reported locally in the Bay Area news media and nationally by United Press International. Will it have any effect? Early reaction was mixed. Reporter Paul Engstrom of the *San Jose Mercury News* asked his own executive editor, Bob Ingle, whether he would comply. "My initial reaction is no," Ingle replied, "because everybody already knows that" (that astrology has no basis in scientific fact).

The editor of the *Knoxville News-Sentinel*, Harry Moskos, wrote a prominently displayed editorial-page column calling readers' attention to the scientists' statements, adding: "Kurtz is right in calling astrology pure fiction. His challenge not only raises the question of whether newspapers should be running a disclaimer but whether newspapers should be running them at all."




In a subsequent column (December 9), Moskos chronicled reader's reactions. Perhaps surprisingly, many readers agreed with the CSICOP position. Some even said it didn't go far enough. "In the name of plain, everyday common sense, why don't you cancel the daily Astrograph?" wrote one reader. Wrote another: "I think it is preposterous that a newspaper should waste one single inch of valuable space on an astrology department." Said another: "I think the column is a definite detriment to our society. . . ."

The CSICOP mailing to newspaper editors on November 28 prompted various reactions. Some published the

letter as a letter to the editor. Some published the entire article. Others published editorials or their own articles in response to the mailing. Some responded by letter to Paul Kurtz.

"I agree with your point about astrology columns, and I wish we didn't have one," Jack Foster, editor of the *West Palm Beach Evening Times,* wrote Kurtz. "But killing an astrology column is an invitation to get your building burned down." He added that his newspaper doesn't publish its astrology column in the same space each time. "[We] make readers hunt through the paper to find it." As for the disclaimer, he decided they would not use it.

The entertainment editor of two Illinois papers was more positive. "I've been including your disclaimer with our astrology columns in the Charleston, Ill., *Times-Courier* and Mattoon, Ill., *Journal Gazette* since UPI broke the story a few weeks ago," wrote Dan Hagen. "I'll be running your article in our entertainment section as well. The efforts of the Committee to promote rationality are appreciated in this corner."

Donald J. Sterling, Jr., assistant to the publisher of *The Oregonian,* Oregon's largest daily, wrote a lengthy editorial column. It referred to the wording of the proposed disclaimer and commented: "The Oregonian's editors agree with that view of horoscope columns. So why does the paper publish them? Because some readers want them." He said the newspaper received 220 letters and phone calls of protest when it experimentally dropped Sidney Omarr's "Star Signs" column last September. Sterling reiterated that the newspaper publishes the horoscopes for entertainment value only "and not because the editors believe the columns have power to foretell human events." He devoted considerable space to the CSICOP statement and the critical studies of astrology referred to in the Kurtz/Fraknoi article.

Baxter Omohundro, managing editor of the Columbus, Ga., *Ledger and Enquirer,* replied that he and his colleagues had pondered the points in the letter "and have concluded that our use of such material on our comic pages is sufficient to signal any discerning reader that we regard them as entertainment material."

Not all the reaction was positive or genially neutral. Randall Howell of the *Mesabi Daily News,* Virginia, Minn., began his letter, "I'm darn tired of people like yourself telling other people what they should or should not do." He first thought the letter was a joke, then decided, "You are serious. How sad for science." He challenged science to "explain to me, scientifically if you will, the laboratory equivalent of love," and added, "I find it refreshing that people believe in something." He concluded that he was unimpressed and "only hope that you and your groupies soon stumble onto something worthwhile to warn people about." He signed himself "Editor . . . and an Aquarian."

As we go to press, two more papers now carry the disclaimer: the *Indianapolis Star* and the *Wilmington (Del.) News Journal.*

—*Kendrick Frazier*

# Scientific Facts and Fictions: On the Trail Of Paranormal Beliefs at CSICOP '84

CSICOP's 1984 conference at Stanford University, "Paranormal Beliefs: Scientific Facts and Fictions," was originally intended to be smaller than the first conference the year before in Buffalo. It wasn't to be.

To no one's displeasure, almost 600 registrants attended, and the result was the unexpected richness of personal interactions that turn a conference into far more than just a scientific meeting. The meeting and eating halls were packed, and if crowds sometimes kept an attendee from getting to a colleague across the way, more than likely he (or she) would quickly bump into someone he knew only by letter, voice, or name. Thus are new contacts made, ideas exchanged, friendships and alliances forged.

Officially, it all got underway with a reception and banquet Friday evening, November 9, at the garden-style Hyatt Rickeys Hotel in Palo Alto. CSICOP chairman Paul Kurtz launched the proceedings with a review of the history of the Committee, the essential role of skepticism in science and education, and the abundant deficiencies of news media reporting on the paranormal. The eminent philosopher and CSICOP Fellow Sidney Hook followed with a scholarly keynote address on reason, science, and myth. The evening also featured the presentation of CSICOP's 1984 "In Praise of Reason" award to Professor Hook and citations to two journalists whose work exemplifies perceptive critical reporting on the paranormal (see accompanying story).

Saturday morning, amid the sweet smell of rain-moistened eucalyptus, the buses whisked everyone off to the Kresge Auditorium on the Stanford campus. There the session on "Space-Age Paranormal Claims" got off to a rousing start with a spirited skewering of astrology and a beautiful evocation of the awesome real wonders of the universe by astronomer Andrew Fraknoi, who almost had the audience on their feet when he finished.

Another highlight was a rare—perhaps unprecedented—joint appearance of UFO proponent J. Allen Hynek and archcritic Philip J. Klass. Those who expected fireworks may have been disappointed. Hynek professed to be a skeptic and gave a dry, statistical paper that was remarkable mainly for the degree to which he apparently takes the multitudinous eyewitness reports of UFO sightings if not at face value nevertheless as a manifestation of some deep scientific mystery. Klass, temporally separated from Hynek by a critical talk on ancient-astronaut claims by Colorado State University astronomer Roger Culver, ended his paper on the UFO nonphenomenon by challenging Hynek, not to a duel, but to put his

Andrew Skolnick

Sidney Hook: Reason, science, and myth.

Gary P. Posner

More than 500 persons attended CSICOP sessions at Stanford.

best cases to the judgment of the National Academy of Sciences. Hynek didn't go for the idea.

After a California salad-bar lunch, attendees returned to take up the matter of the alleged "Psychic Arms Race." No topic on the agenda had as much worldwide media (and supposedly governmental) attention during the past year.

This panel included writer Martin Ebon, who good-naturedly prefaced his talk: "I come to you as a token parapsychologist, and you should be nice to me." (Actually several other parapsychologists, including Russell Targ, coauthor of *The Mind Race,* had been invited to take part in this panel; all declined.) Ebon, author of *The Psychic Arms Race: Fact or Fiction?* gave it all away at the beginning when he looked up from his prepared paper and said, "Incidentally, there is no psychic arms race. Don't worry about it!" (He did go on to provide many interesting insights into parapsychology in the Soviet Union.)

The other panelists agreed. Ray Hyman did not speak on his critical analysis (*SI,* Winter 1984-85) of Targ's book, which helped promote the idea of a psychic arms race. He offered instead a number of general principles that demonstrate why *any* claims for evidence of psi should be treated with scientific caution. Examples: "The Problem of the Shifting Data Base" (as soon as critics shoot down the most recent experiment claimed to validate psi, parapsychologists drop that one and come up with a new candidate). "To Be Forewarned Is to Be *Dis*armed" (the false and misleading comfort that if one knows about the methods of trickery and self-deception, one is immune to them). "The Patchwork Quilt Fallacy" (defining psi by whatever you find; if you notice a decline effect, that becomes part of your data). All parapsychology experiments so far are seriously lacking in scientific persuasiveness, he concluded.

Philip Klass returned to the podium with a solid paper based on his experience as a longtime Washington reporter for *Aviation Week* (sometimes known as "Aviation Leak," for its frequent stories on innermost Pentagon

secrets). "In my more than three decades as a technical journalist," said Klass, "I have never heard a single leak indicating any official Pentagon interest in psychic weapons or warfare, nor has any member of our staff, to my knowledge." He reported on a conversation he had recently with Lt. Gen. Daniel Graham, former director of the Defense Intelligence Agency. Graham said a *New York Times* article stating Graham "acknowledged that the military had spent considerable sums on psychic research" had been off base. Klass said Graham told him he had been badly misquoted. Graham had told the *Times* reporter that he himself had "no knowledge" of any Pentagon funding of psychic research.

The final, evening session, "Psychic Claims," was led off by physician Wallace Sampson's thorough critical evaluation of claims that meditation can cure cancer. Sampson wrapped it up this way: "One can only conclude that commercializing and franchising this method is not in the public interest. It is in all likelihood a soft-core type of quackery, and suffers from the usual type of pseudoscientific thinking."

Then came two dramatic presentations (although neither featured even one magic trick) by magicians Robert Steiner and James Randi. Steiner's was on his experience in Australia playing the role of a famous (but fictitious)

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Hynek and Klass: Antagonists momentarily bury their differences at opening reception.

Andrew Skolnick

Hyman: The patchwork quilt fallacy.

American psychic, "Steve Terbot." The Australian Skeptics (and some sympathetic members of the Australian media) helped carry off the hoax, in which Terbot garnered enormous national publicity for his paranormal abilities only to reveal his true nonpsychic identity on a live national television show. Mark Plummer, chairman of the Australian Skeptics, spoke briefly to the Stanford audience about the positive effects the hoax had in showing Australians fascinated with the paranormal how easily they could be deceived.

Astronomer Steven Shore of the Space Telescope Science Institute preceded Randi's presentation on the Columbus poltergeist case with a short summary of his own experiences investigating the incident with Randi in Columbus. He and colleague Nick Sanduleak of Case Western Reserve University concluded, as did Randi, that the whole thing was a hoax and that the media, eager for an exciting story, had been gulled into swallowing the deceptions of the Resch daughter. Randi followed with a rapid-fire multimedia presentation. It featured a slide show of a dozen photographs taken but never published by the *Columbus Dispatch* (which has denied the SKEPTICAL

Andrew Skolnick

Ebon: No psychic arms race.

Gary P. Posner

Randi: Flying phones phoniness.

INQUIRER permission to reproduce them), several of which show clear deception on Tina Resch's part. It also included a television station videotape that caught her intentionally reaching up and pulling over a lamp, then springing away in mock surprise. (Randi's two-part report on this case begins in this issue of the SKEPTICAL INQUIRER.)

Parapsychologist William Roll, target of some criticism by Randi and Shore for his role and his pro-poltergeist comments in the Tina Resch case, followed on the program. But he averted any confrontation on the subject by delivering a prepared paper on some amusing incidents of psychic deception he had encountered in South American countries.

Stanford statistician Persi Diaconis concluded with a discussion of pitfalls that lead people to misunderstand the probability of dramatic coincidences and therefore to misattribute paranormal significance to them.

Although the conference was sponsored by CSICOP and the Stanford Department of Psychology (represented at the meeting by Lee Ross), the work of the Bay Area Skeptics was indispensable in implementing all the necessary arrangements. Its many able members and volunteers, working with the CSICOP Buffalo-based staff, helped make the conference both an intellectual and logistical success.

The most frequently asked question as the conference wound to a close was, "Where is the next one going to be held?" Although there have now been only two, these CSICOP conferences seem to be increasingly popular and important to those who attend. The next morning, the CSICOP Executive Council voted to accept an invitation

Gary P. Posner

Steiner: Going "psychic" Down Under.

from the Colorado Organization for a Rational Alternative to Pseudoscience (CO-RAP) to hold a CSICOP conference at the University of Colorado, Boulder in April 1986.

CSICOP is now making plans for a conference at the University College in London on June 28 and 29, 1985, in cooperation with the Committee's U.K. branch. (See page 235.) For details contact Mary Rose Hays, CSICOP, Box 229, Buffalo, NY 14215-0229, or call her at 716-834-3222.

—*Kendrick Frazier*

## Jaroff, Yost Presented CSICOP Journalism Awards

FOR THE FIRST time, fair and balanced reporting of paranormal claims has been recognized with the establishment of the CSICOP "Responsibility in Journalism Award." Its first recipients, Davyd Yost of the Columbus, Ohio, *Citizen Journal* and Leon Jaroff, formerly managing editor of *Discover* and now sciences editor of *Time*, attended the presentation at the CSICOP 1984 conference opening banquet on November 9.

SKEPTICAL INQUIRER editor Kendrick Frazier presented the award to Yost, whose restrained and skeptical articles about the Columbus, Ohio, "poltergeist" captured CSICOP's attention. "In the mold of careful, responsible journalism, he reported the claims straightforwardly, as one must do as a daily newspaper reporter," said Frazier in awarding the plaque. "But each story made a special effort to go beyond the 'he said' statement, the claims that most of the other media took at face value. Each one offered skeptical scrutiny and made some special effort to get outside expert opinion."

As managing editor of *Discover*, Leon Jaroff established the "Skeptical Eye" column, which examines paranormal claims. In presenting the award, CSICOP Fellow and *Aviation Week and Space Technology* senior editor Philip Klass cited Jaroff's "political courage" in committing himself to a "regular column that seeks to provide useful perspectives—if not debunking—of some claims of the paranormal."

Gary P. Posner

Leon Jaroff receives CSICOP "Responsibility in Journalism Award" from Phil Klass.

Klass said that the media have two approaches to reporting paranormal claims: "pandering" to the public's interest in the extraordinary or ignoring it. "Leon Jaroff decided not simply to ignore such things, but to actually feature them—to consider them and give them feature treatment."

Noted Frazier: "There are many responsible reporters who want to do a good job in covering these kinds of controversial, exotic topics. We want to acknowledge and encourage this kind of positive effort in responsible reporting."

—*Andrea Szalanski*

## First Get-Together of Local CSICOP-Type Groups

A FEW HOURS before the start of the banquet that kicked off the 1984 CSICOP conference on November 9, an afternoon session was held to bring together in informal discussions

many representatives of local skeptics' groups in the United States and of CSICOP's international affiliates. The session, lasting almost two hours, was the first opportunity for people from these geographically diverse groups to meet together. It gave a tremendous impetus to the formation of other such groups elsewhere.

First, as chairman of the session, I explained what motivated Bob Steiner and me to found the Bay Area Skeptics (BAS) in 1982. The Austin Society to Stop Pseudoscience and the BAS were the first groups to be identified with a metropolitan area rather than with a country, as are CSICOP's foreign affiliates. Steiner and I had met a number of people in the Bay Area who shared our concern about the widespread uncritical acceptance of paranormal claims. But there was no organization in which they could participate, especially in face-to-face discussions, and there were no lectures to attend to hear knowledgeable speakers present rational alternatives to unfounded claims. We felt that without a focus these people's energies would never be harnessed. The Bay Area Skeptics was to be the answer to this dilemma. I pointed out how certain pro-UFO groups, most notably the National Investigations Committee of Aerial Phenomena (NICAP), had used local organizations, often with great effectiveness.

Steiner related some of BAS's achievements in its first two years. There are now almost 300 subscribers to our monthly newsletter, BASIS, and the impact of Bay Area Skeptics is being increasingly felt in local newspaper, radio, and TV coverage of paranormal claims.

The session, in which about 100 people participated, next heard from Michael Dennett and John Merrill of the Northwest Skeptics, a group now prospering in Oregon, Washington, and Idaho. Representatives of other local groups, in early stages of formation, then introduced themselves: Leon Day from Houston; Gerald C. Mertens from Minnesota; James E. McGaha from Tucson, Arizona; Béla Scheiber from Colorado; Andrew Skolnick from New York; and Terence Sandbek from Sacramento. (The Sacramento group is part of the Bay Area Skeptics, but conducts some activities independently.) Representatives from three international groups also told of their activities: Mario Mendez-Acosta from Mexico, Michael Hutchinson of the U.K., and Mark Plummer of the Australian Skeptics.

Among the subjects discussed in the time remaining was the question of the by-laws for such groups and what the relationship of these groups is to CSICOP. (CSICOP chairman Paul Kurtz explained that, because local groups operate completely independently, they are not, strictly speaking, local "chapters" of CSICOP. Instead, they are local groups pursuing aims similar to CSICOP's and in cooperation with CSICOP. The local groups do not speak for CSICOP, or vice versa, and neither can set policy for the other. This gives everyone a maximum of flexibility and a minimum of bureaucracy. Also discussed were the issues of newsletters, community relations, and "psychic challenges."

During the session and afterward, several people expressed interest in setting up local organizations in their areas. The following day, in the lobby of Stanford's Kresge Auditorium, where the main sessions were held, a sign-up sheet was posted so that people could exchange names and addresses for this purpose. It appears that "seed crystals" were planted for groups in many areas. Within two weeks of the close of the conference, a skeptics' group in the Los Angeles area appeared to be well on its

way to being launched, under the capable direction of physicist Al Seckel (see story below). It seems likely that within a few years every major metropolitan area in the United States will have an active and vocal group of skeptics, ensuring that the torrent of paranormal claims will not go unchallenged.

—*Robert Sheaffer*

*Robert Sheaffer is a CSICOP Fellow and the co-founder of the Bay Area Skeptics.*

## Southern California Skeptics Announces Formation, Plans

MEETING A LONG-FELT need, there is now a local CSICOP-type group in the Greater Los Angeles metropolitan area, a major progenitor of fringe-science claims. Al Seckel, a physicist and teacher of intellectually gifted children, has formed the Southern California Skeptics.

Organized subsequent to CSICOP's conference at Stanford in November, which Seckel and a number of other Southern Californians attended, it has a Board of prominent scientists and investigators: Ronald Crowley, professor of physics at Cal State-Fullerton and an investigator of psychic claims; Murray Gell-Mann, professor of physics at Caltech (and 1969 Nobel laureate); Roderick Gorney, M.D., professor of psychiatry at UCLA; Al Hibbs, senior staff scientist, Jet Propulsion Laboratory, Pasadena; Joe Kirschvink, assistant professor of geobiology, Caltech; Edwin C. Krupp, astronomer and director of Griffith Observatory, Los Angeles; Gerald Larue, professor of biblical history and archaeology, USC; Dennis Marks, magician, mentalist, and psychic investigator; Paul MacCready, aeronautical engineer and president, AeroVironment, Inc., Pasadena James Randi, magician (the only non-Californian on the Board); Ronald K. Siegel, psychoanalyst and psychopharmacologist, UCLA; and Gordon Stein, physiologist and editor of the *American Rationalist*. Gell-Mann, Krupp, MacCready, and Randi are CSICOP Fellows.

Seckel says the group will not have members but will have subscribers to a newsletter. The address: Al Seckel, Chairperson, Southern California Skeptics, P.O. Box 7000-39, Redondo Beach, CA 90277. Telephone (213) 540-0915. Subscriptions are $25, which includes a subscription to the SKEPTICAL INQUIRER, or $15 to persons who are already *SI* subscribers. It is also offering, for $25, a two-hour videotape (VHS or Beta) of Randi's lecture at Caltech, "Science and the Paranormal." The group will hold monthly meetings at Caltech that will feature distinguished speakers on various aspects of the paranormal.

The first two meetings, on January 6 and February 3, with Robert Sheaffer and Larry Kusche as guest speakers, each drew a capacity audience of 350.

—*K.F.*

## New York Committee To Oppose Pseudoscience

A NEW YORK regiment has joined the fight against irrationalism and pseudoscience. Called the New York Committee for Skeptical Inquiry (NYCSI), it is one of many CSICOP-type groups recently organized around the country to combat occultism and pseudoscience.

Working closely with allied groups, NYCSI will promote the critical examination of paranormal phenomena, exposing fraud when necessary. Mem-

bers include journalists, scientists, educators, magicians, doctors, and others concerned about the widespread belief in astrology, psychic "detectives" and "surgeons," and other dubious claims.

NYCSI intends to serve as a reliable source of information for educators, the media, and the public. The committee will host public lectures and debates, demonstrate spoon-bending and other psychic fakery, test those who claim psychic powers, and publish a newsletter.

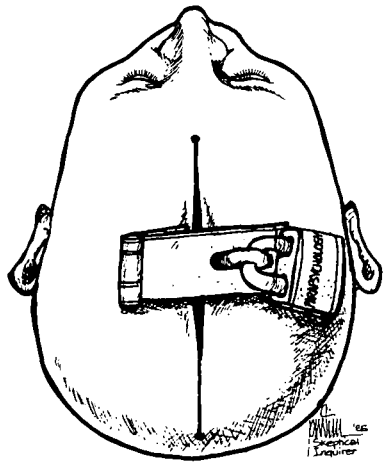
NYCSI will also help schools in their efforts to teach students about the methods of scientific inquiry.

The New York group does not endorse knee-jerk rejection of the paranormal. "On the contrary," said Andrew Skolnick, a science writer and NYCSI's chairman, "we believe that truth can best be established through the controlled testing of claims. Believers in the existence of the paranormal as well as skeptics should welcome NYCSI's efforts to scientifically test claims and to rid the field of charlatans. If there is evidence proving the existence of the paranormal, it is lost in the confusion and misinformation being spread by the thousands of frauds who now hold the public's attention."

Among NYCSI's founders are its co-chairman, Terence M. Hines, assistant professor of psychology at Pace University; its secretary and editor, Debbie L. Rosenberg, a science editor; its treasurer, Mary R. Dolson; and James Randi, the magician and psychic investigator. For further information contact Andrew Skolnick, NYCSI, 60 West 83rd Street, New York, NY 10024.

## CSICOP at the BAAS: From Magicians to Fringe Medicine

THE BRITISH branch of CSICOP came out of the closet last September to join Section X at the annual meeting of the British Association for the Advancement of Science, held at the University of East Anglia in Norwich.



The Association has 17 sections, covering all aspects of science, and Section X is the "general" section: It tries to present issues in their social context and to make bridges between different disciplines.

The final day was given over to "Science and Parascience." Speakers were allotted 45-minute slots—30 minutes for a talk and 15 minutes for questions and answers.

The first to speak was Harry Collins, director of science studies at the University of Bath. He was concerned, he said, not with parapsychologists as a whole, but only with the top 10 percent. He didn't explain how anyone qualified for this. He argued that parapsychologists were under closer scrutiny than natural scientists. They have to take unusual care with the scientific quality of their work because their work is scrutinized by a hostile audience and the details are examined in a way that is rare in science.

What we've all been told about sci-

entific validity is a myth, he said. Most of the time, experiments do not work. Published data in science are highly selective. Collins showed a comment from a page in the notebook of Robert Millikan, written while he was working on his famous oil-drop experiment to determine the electric charge on a single electron—"error high: will not use."

Collins repeated his familiar distrust of magicians: "Magicians are not scientists." They have no experience of the problems of scientific work, but in parapsychology there are three possible roles they can play. They can (1) tell all (difficult for them because of professional secrecy); (2) help privately (a friendly magician might be able to give useful advice); (3) be guinea pigs (if a magician can't defeat the protocol, maybe you've got a good set of controls). But since magicians have no professional obligations to the scientific community, he contended, it is vital that they be confined to the role of helpers.

Collins claimed that in parapsychology it is the subjects who are fraudulent, not the experimenters. (Presumably, casting the magician in the role of the experimenter's subordinate will keep this claim free from overcritical attention.)

The journalist and occultist Brian Inglis spoke at such high speed that it was often difficult to catch his drift. In so far as he was understandable, he seemed to believe that, at all times and in all parts of the world, psi phenomena have been reported by "reliable observers" and investigated by "eminent scientists, most of whom have accepted that some at least are genuine."

On the other hand, claimed Inglis, conventional science has been permeated by fraud. In the history of parapsychology, fraud has been widespread "chiefly among skeptics." And the only fakes Inglis referred to were "fake exposures."

He repeated his complaint that a refusal to accept psi is a sign of a closed mind, with CSICOP as the Door Slammers' Union. And he provided the meeting with the word *skepticemia,* which became something of a tag-word during the day's proceedings.

The writer Ruth Brandon presented some case histories of scientists and the paranormal. These were familiar to those who had read her book *The Spiritualists* (which she had wanted to call "The Machine in the Ghost"). Almost every medium has eventually confessed to fraud, she said, but that has never affected their standing among believers. And the interest of eminent scientists in investigating the paranormal has been taken as evidence in its favor—a case of the investigators becoming part of the evidence.

Magician James Randi used a piece of chalk to show how baffling some of the simplest conjuring sleights can be to the unpracticed eye. He took three or four spoons from his various pockets ("I've been stealing these all day") and used one of them to demonstrate the now classic effect: when rubbed by a fingertip, the spoon handle softened, became floppy, and finally broke in half. Randi balanced a borrowed pencil on a table edge, and caused it to turn "psychically." The audience was invited to offer explanations and was eventually let in on the secret.

A newspaper column was cut at a place chosen by a member of the audience, and a word was freely selected from it. A piece of paper that had been in view from the start predicted the chosen word correctly. Randi chose to leave this effect unexplained, and the audience found themselves in the position of the experimenter who has no available explanation for a phenomenon that seemed to defy natural laws.

The medical writer and television producer Karl Sabbagh talked about

fringe medicine and how it worked. His recipe for setting up as a fringe practitioner was a simple one: (1) Think up a treatment. (2) Make sure it's harmless. (3) Find a patient with a disease. (4) Apply the treatment.

There's an important point to be made about item No. 4. Ailments have their natural ups and downs, and you should apply your treatment at a time when the ailment is getting *worse*. There are now four possible outcomes, and every one of them can be turned to your advantage: (1) Patient improves: "The treatment has worked." (2) Condition remains stable: "The treatment has arrested the downward course of the disease." (3) Condition worsens: "The dose was clearly not high enough" or "The treatment was delayed too long." (4) Patient dies: "The patient was too late in coming for help."

If the patient is not satisfied with the result, all is not lost. The advice now is to *reduce* the treatment. Once again, you can't lose: (1) Patient improves: "The treatment worked." (2) Condition remains stable: "The treatment is so good that even a reduced version is effective." (3) Condition worsens: "The original dosage was right after all." (4) Patient dies: "Withdrawal of the original dosage has produced a severe setback."

These ingenious ploys are part of the Freireich Experimental Plan, devised by an American cancer specialist. They are available because of the almost total absence of controlled trials for fringe medicine.

The harm that can come from relying on fringe medicine is seen most starkly when it leads to death. Patients are deprived of effective treatment by following the instructions of the fringe practitioner. Children can be deprived of effective treatment by gullible parents.

Fringe medicine is greatly helped by being applied to a variety of non-diseases, much beloved by some of the patent-medicine ads: brain fag, doormat tendency, and even, in one sample, "goneness."

Science writer Jeremy Cherfas took us on a conducted tour of the claims of astrology and the tests that have been applied to them. As readers of this magazine well know, virtually all of these tests have shown the claims to be empty.

The final speaker of the day was to be Robert Mullan, a lecturer in the School of Economics and Social Studies at the University of East Anglia. His subject: "The Search for Self-fulfillment and the Rejection of Science." Unfortunately Dr. Mullan was nowhere to be found. This was as convincing a case of goneness as most of us are likely to see, and it is to be hoped that Dr. Mullan was speedily sent a packet of the appropriate medicament.

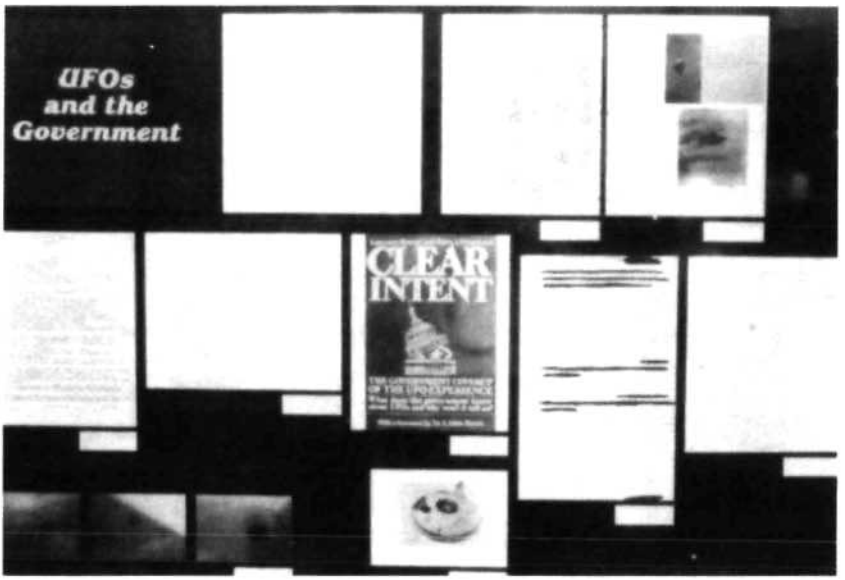
—*Lewis Jones*

*Lewis Jones is a London writer and a member of the U.K. section of CSICOP.*

## A New UFO Photo Exhibit: No Evidence of Skepticism

THE CENTER FOR UFO Studies (CUFOS) has completed assembling a new photographic display, and it was recently featured at a Seattle-area shopping mall. John P. Timmerman, chairman of CUFOS, was on hand to answer questions and to offer material to local shoppers. Although the new display is aesthetically much improved over the original, most of the photos displayed are the same as before (see *SI*, Spring 1984, pp. 209-210).

Some major changes should be mentioned. One of the 14 panels is




Panel titled UFOs and the Government.

devoted to the types of things that are often mistaken for UFOs, what CUFOS calls "Identified Flying Objects," or IFOs. To complement the photo exhibit, a small pamphlet providing some information about each photo is available—free.

The bulk of the exhibit consists of photos and drawings of a questionable nature. Close encounters of the third kind are a major portion of the display. Prominent among the CE-III cases featured are the Travis Walton abduction story and the 1964 Socorro, New Mexico, incident. No mention is made either on the panels or in the free pamphlet that these CE-IIIs are widely regarded as obvious hoaxes.

The famous McMinnville (Oregon) photos, taken by Paul Trent, and the Delphos, Kansas, case are also a part of the presentation. One panel in the display is titled "UFOs and the Government" and includes copies of UFO-related "documents" obtained under the Freedom of Information Act. This panel also presents the book *Clear Intent*, another in the seemingly never-ending series of government-conspiracy books. (See review in *SI*, Winter 1984-85.) It is hard to view this part of the display as anything but an endorsement of the conspiracy theory of UFOs.

One thing the CUFOS exhibit does not endorse is any kind of skepticism about UFOs. A panel titled "Research and Publication" names groups and associations from all over the world yet includes no mention of CSICOP or the SKEPTICAL INQUIRER. In the 12-page guide to the exhibit no work skeptical of UFOs is mentioned; many pro-UFO books and periodicals are listed.

CUFOS had requested that local associates help with the show. When I visited the mall display, Dale D. Goudie, director of the Puget Sound Aerial Phenomena Research group (PSAPR), was assisting in answering questions. I asked Goudie if he agreed with the figure on the IFO panel that 80 to 90 percent of all UFO sightings

were IFOs. He said CUFOS was way off base with that figure and suggested that only 30 percent of sightings were actually IFOs, the rest being legitimate unknowns. Goudie also strongly endorsed the government-conspiracy theory and said that his group was working on a major case that took place in Tacoma. Evidence about this new case was not yet ready for release to the public but would be soon. I was told that PSAPR was concerned strictly with pursuing a scientific avenue to UFOs.

Perhaps the most significant photos in terms of how CUFOS approaches UFOs were in the Rex Heflin snapshots. Originally taken by Heflin in August 1965, the photographs have been almost unanimously hailed as hoaxes even within the UFO community. When the first exhibit came to Seattle, the Heflin photos were included in the display. When I complained about these photos, in correspondence to Timmerman, he replied that there were "many, including highly regarded students of the UFO phenomenon, who regard them as unexplained." Later, in my report for the SKEPTICAL INQUIRER, I identified the strong case against the Heflin photos (see *SI*, Spring 1984). The new exhibit still contains the photos, but in the free pamphlet they are identified as photographs "regarded as hoaxes by the majority" of researchers.

In my first report on the CUFOS UFO Exhibit, I wrote that the display was another indication of the intellectual bankruptcy of UFOlogy. This may have been an unfortunate choice of words, for it may have implied a financial as well as a scholarly problem for the exhibit. The fact is that Southcenter Mall paid CUFOS $1,000 for the three-day display and in addition covered all expenses, including shipping, air fare, and lodging. The exhibit reflects little credit either to the mall's management for presenting it to the public or to CUFOS for composing it. Statements that CUFOS intends to approach UFOs scientifically are effectively refuted by the display.

—*Michael R. Dennett*

*Michael Dennett is chairman of the Northwest Skeptics.*

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# Scientific Tests of Astrology Do Not Support Its Claims

Paul Kurtz
Chairman, Committee for the Scientific Investigation
of Claims of the Paranormal, Buffalo, New York

Andrew Fraknoi
Executive Officer, Astronomical Society of the Pacific, San Francisco

*Two weeks after the November 9th press conference in San Francisco preceding the 1984 CSICOP conference, this article accompanied a letter from CSICOP to every daily newspaper in the United States requesting that they run a disclaimer with their astrology columns. (See News and Comment, pp. 194-196)*—ED.

AN ESTIMATED 1,200 newspapers in North America carry astrology columns. While many editors chuckle and tell you that no one takes these columns seriously, the evidence does not bear this out. For example, a June 1984 Gallup poll showed that 55% of American teen-agers (ages 13-18) believe that astrology works. Continuous exposure to the ideas of astrology in newspapers contributes to that credulity.

Astrologers assert that astrology has a successful record stretching back 4,000 years and that this record speaks for itself. Yet dozens of scientific tests of astrological columns, charts, and horoscopes clearly contradict this claim.

The present formulation of astrology was largely codified by Ptolemy in the second century A.D. The basic premise is that the position of the heavenly bodies at the time and place of an individual's birth influences or is correlated with his or her personality, physical characteristics, health, profession, and future destiny. Classical astrology regarded the earth as the center of the universe, with the planets, stars, sun, and moon orbiting around it. The heavenly bodies were originally considered divine and possessing "magical" characteristics. Thus Mars, thought to be the color red, represented the god of war and signified courage and aggression. Venus was soft and white and was the goddess of love and beauty.

What does science have to say about astrology? First, modern astronomy has negated its key principle: that the earth is the center of our solar system. We now know that the planets circle the sun, that our solar system is on the outskirts of a galaxy, which itself is only a part of an expanding universe that contains millions of galaxies. Moreover, new planets (Uranus, Neptune, Pluto) have been discovered that were unknown to ancient astrologers. It is interesting that the presumed astrological influences of the planets did not lead astrologers to discover them long before astronomers did.

Second, we now know that a person's personality and physical characteristics are determined by his or her genetic endowment inherited from both parents and by later environmental influences. Several decades of planetary exploration have confirmed that there is no appreciable physical influence on the earth from planetary bodies. Indeed, the obstetrician hovering over the infant during delivery exerts a much greater gravitational pull than the nearest planet.

Third, there have been exhaustive tests of astrological claims to see if they have any validity. Astrologers predict that individuals born under certain signs are more likely to be personality types that become politicians or scientists. Thus you would expect the birth dates of these two groups to cluster in those signs. John McGervey, a physicist at Case Western Reserve University, looked up the birth dates of 16,634 scientists listed in *American Men of Science* and 6,475 politicians listed in *Who's Who in American Politics* and found the distributions of these signs were as random as for the public at large.

Are some signs relatively more compatible or incompatible with each other, as astrologers maintain? Professor Bernard Silverman, a psychologist at Michigan State, obtained the records of 2,978 couples who married and 478 couples who divorced in Michigan in 1967 and 1968. He found no correlation with astrologers' predictions. Those born under "compatible" signs married—and divorced—just as often as those born under "incompatible" signs.

In order to look for trends favoring astrological signs ruled by Mars (courage and aggression) as opposed to signs ruled by Venus (love and beauty), James Barth and James Bennett at George Washington University examined the horoscopes of men who re-enlisted in the Marine Corps between 1962 and 1970. No such correlation was found.

What about the often-heard claim of famous astrologers that they have made countless correct predictions over the years? Astronomers Roger Culver and Philip Ianna examined 3,011 specific predictions by well-known astrologers and astrological organizations. The results indicated that only 10% of these predictions were realized. The public reads the predictions in newspapers and magazines; the fact that 90% of these predictions never come true is not publicized.

Newspaper charts and horoscopes deal primarily with the sun signs rather than with other so-called planetary influences. Even astrologers admit that the sun-sign astrology featured in newspaper columns has little reliable basis for prediction of the day's events. Incidentally, very few astrology columns agree on what is supposed to occur.

Why then do so many people believe that astrology works? Careful inspection of astrological predictions in a typical newspaper column shows that the statements are so general and vague that they can apply to anyone.

The results of one experiment show why these statements sometimes seem to work. C. R. Snyder, a psychologist at the University of Kansas, and his colleagues drew up a personality description that incorporated the characteristics they found most people believed they possessed. They showed this description to three groups of people, each of whom was asked to rate, on a scale of 1 to 5, how well they were described by it. The individuals in the first group were told it was a universal personality sketch, and the average rating was 3.2. Individuals in the second group were asked for the month in which they were born and were then told the statement was a horoscope for their signs. On the average, they rated it 3.76. The individuals in the third group were asked for the day on which he or she was born and were told that the description was his or her *personal* horoscope. This group rated the same description an average of 4.38. Apparently those who want to believe will do so!

We respectfully ask that newspapers let their readers know that astrology columns should be read only for their entertainment value and that they have no reliable basis in scientific fact.•

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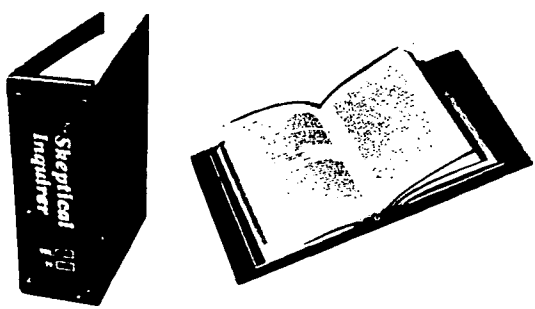


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MARTIN GARDNER

# Notes of a Psi-Watcher

## The Relevance of Belief Systems

IN THE JANUARY 1984 issue of the *Journal of the American Society for Psychical Research,* my *Science: Good, Bad and Bogus* was reviewed at length by Douglas M. Stokes. Dr. Stokes (his Ph.D. is in experimental psychology at the University of Michigan) is chairman of the mathematics department at the Shipley School, a private preparatory school in Bryn Mawr, and an associate editor of the *Journal of Parapsychology.* Although he spent a year in Rhine's laboratory, he has since retired from experimental work in parapsychology. His views are more skeptical than those of most parapsychologists; indeed, he stopped doing work in the field of psi phenomena over frustration at his failure to obtain reliable evidence.

I must say that Stokes's 9-page review was much more tolerant of my views than I would have expected, and I am grateful for his many generous remarks. There is, however, a passage in his review on which I should like to comment because, although it expresses a view common in the rhetoric of parapsychology, I believe it to be misguided. I refer to the view that in evaluating psi research it is always irrelevant to mention the researcher's religious views.

If by "religious views" one means a metaphysical system nowhere in sharp conflict with firmly established science, then they are indeed irrelevant. But if the system demands adherence to eccentric science, the situation is quite different.

Stokes takes me to task for pointing out that Harold Puthoff was once a believer in Scientology and that one of Puthoff's assistants and some of his most successful subjects in remote viewing were and are Scientologists. "Gardner maintains," Stokes writes, "that this is relevant information, as the Church of Scientology adheres to a belief system which is, in Gardner's views, irrational." Stokes goes on to say that many "orthodox religions" are equally irrational. "Would it not be offensive," he asks, "to argue that, say, a cosmologist's research is suspect because he is a Catholic?"

Well, it all depends on the kind of research and the nature of the scientist's Catholic beliefs. In the days of Galileo, when all Catholics believed the earth to be the immovable center of the universe, those convictions were strongly relevant to the research of Catholic astronomers. Today, I know of no Catholic beliefs that bear significantly on modern cosmology. The day is long past when Catholics were obliged to assume that

the earth does not move and that the universe was created less than ten thousand years ago. Indeed, a Catholic may believe with Saint Augustine that the universe has an infinite past and still is the creation of God.

When we turn to present-day fundamentalism there is an inescapable conflict with science. Not only do most creationists deny the fact of evolution—but they insist that the earth and all living things on it did not exist before the six-day period of creation described in Genesis. The leading "geologist" of modern times who defended the flood theory of fossils—the theory that fossils are records of life destroyed by Noah's flood—was George McCready Price. I consider his 726-page work, *The New Geology* (1923), to be a masterpiece of modern crankery. Almost all creationist books now in print steal shamelessly from this ingenious volume, sometimes even reproducing its pictures without credit.

Now Price was a devout Seventh-Day Adventist, and Adventists are fundamentalists who take the "days" of Genesis to be 24-hour periods. It is almost impossible for Adventists to hold a contrary view because that would mean going against the revelations of their inspired prophetess, Ellen Gould White. When I discussed Price's geology in a chapter of my old book *Fads and Fallacies* I spoke at length about Price's religious background.

I hope Stokes does not consider that irrelevant. As a Seventh-Day Adventist, Price had no choice except to regard fossils as relics of the flood, a fact that renders all his "research" suspect. Of course the same can be said of a book like *The Genesis Flood* (1961) by John Whitcomb, Jr., and Henry Morris. This 518-page volume is priceless Price. In evaluating its "research," surely it is not irrelevant to point out that the authors are fundamentalists.

Can you imagine a secular university giving a doctorate in cosmology to a student who firmly believes that the cosmos did not exist before ten thousand years ago and that God created it with light already on its way from stars that are millions of light-years distant?

It is not offensive to point out that today's leaders of creationist science are Protestant fundamentalists; nor is it offensive to mention that a parapsychologist is a Scientologist. It is impossible to be a Scientologist without accepting the reality of all psi phenomena, as well as a variety of other paranormal powers. A Scientologist must believe in reincarnation and in the fact that an embryo, immediately after conception and long before it develops inner ears, starts to record all conversations in which its mother participates. One must also believe that an E-meter is capable of uncovering these "engrams" and that severe neuroses can be successfully treated by bringing engrams to light and erasing them. (The best reference I know on the pseudoscientific dogmas of Scientology is Christopher Evans's *Cults of Unreason.*

On the roles of Scientologists in Puthoff's research, see the chapter on "World of Thetans" in John Wilhelm's *The Search for Superman.*)

The Church of Scientology is proud of a letter that Puthoff once wrote on the stationery of Stanford University. Here are some excerpts:

> As part of my professional work in education and technology, I am continously involved in assessing various forms of educational systems. In this capacity I have come in contact with and have studied extensively the system developed by L. Ron Hubbard known as Scientology.
>
> Although critics viewing the system from outside may form the impression that Scientology is just another of many quasi-educational quasi-religious "schemes," it is in fact a highly sophisticated and highly technological system more characteristic of the best of modern corporate planning and applied technology. Examination of the system at close hand reveals that upwards of millions of manhours of carefully supervised research have gone into the development of the system, and the successes obtained in the rehabilitation of people's abilities and emotional stability is truly phenomenal. . . .
>
> From a more technical viewpoint, the use of the "E-meter" to measure physiological variables which correlate with emotional responses can be viewed as representative of a large-scale innovation in medical analysis and computer education known as "physiological feedback." . . . In the technological community here at Stanford, we have projects underway employing the techniques developed in Scientology, which techniques have been found to be quite advanced and practical.
>
> The philosophy and understanding of human nature which has arisen from these studies and is expounded in the Scientology literature I find to be an uplifting and workable system of concepts which blend the best of Eastern and Western religious traditions. After seeing these techniques in operation and experiencing them myself, I am certain that they will be incorporated eventually on a large scale in modern society as the readiness and awareness level develops.

My quotes are from a photocopy of the letter on page 31 of the appendix of *Scientology: A World Religion Emerges in the Space Age,* published by the Church of Scientology in 1974. I have no idea how much of this letter Puthoff would today defend because, as far as I know, he has not repudiated the letter or written about his present religious views. We do know he was married in a Scientology ceremony, that he was pronounced "clear" of engrams, and that he reached the church's rank of Class III Operational Thetan.

Stokes thinks that Puthoff's religious beliefs are irrelevant in discussing his research. Mentions of such opinions, writes Stokes, are ad hominem attacks that have no place in scientific discourse. It is as irrelevant, he insists, as calling attention to the fact that a scientist is a Christian or even a philosophical theist.

I find it hard to believe that Stokes cannot see the enormous difference between modern Christianity—which, except for Protestant fundamentalism, involves no dogmas that render any aspect of today's science impossible to accept—and the myriad wild scientific claims that cluster at the core of Scientology. It is indeed irrelevant in evaluating the research of, say, Arthur Holly Compton or Sir Arthur Stanley Eddington to consider their Protestant beliefs. It is indeed irrelevant in evaluating John von Neumann's contributions to quantum mechanics to call attention to his conversion to Catholicism. It is not irrelevant to call attention to a parapsychologist's beliefs in a cult as scientifically illiterate and as morally unscrupulous as Scientology. Can any-

one who believes that experiments have shown that a week-old embryo records its mother's conversation have a sound understanding of the need for adequate controls in behavioral research? It is like expecting a doctor who thinks diseases can be diagnosed by spots on the iris to engage in sound ophthalmological research.

Come to think of it, why does Stokes consider Scientology a religion? Does he not know that L. Ron Hubbard moved from dianetics, a form of quick quack therapy, to reincarnation and Scientology only to get the word *church* into the name of his cult and thereby obtain tax-free status? Does Stokes really imagine that Hubbard was the charismatic founder of a new faith and not a con man out to make a fortune? If so, he has never bothered to inform himself about Hubbard's history. When I spoke of Puthoff's enthusiasm for Scientology, I was not even speaking of his "religion." I was speaking of his immersion in a system of bogus science. Nothing is learned about a scientist's competence if you discover he is a Lutheran. A great deal is learned about his competence if you discover he is a Scientologist.

It is possible, of course, that Puthoff has now matured to the point at which he sees Scientology as a tissue of moonshine. If so, it would be helpful if he would issue a statement of precisely where he stands with respect to Hubbard's dogmas. If he no longer believes them, it will no longer be important to call attention to them.

One more caveat. Stokes quotes a passage in which I say it is difficult for a skeptic to evaluate the work of parapsychologists like Helmut Schmidt who have not made their raw data available to outsiders. "Why is it," Stokes wonders, ". . . that such extreme measures are not needed in evaluating other areas of science?"

Has Stokes forgotten that cardinal rule, so crisply put by Marcello Truzzi, that extraordinary claims demand extraordinary evidence? Does he not see the vast gulf between the need for extraordinary controls in support of Schmidt's claim that psychics can alter, by time-reversed causality, a recording of random emissions from a radioactive substance and the need for such tight controls with respect to the mild claims of most research papers? If Schmidt's claim is true, it would revolutionize physics. No comparable revolution follows from the validity of 99 percent of published research papers.

"The more a statement of fact conflicts with previous experience," wrote Thomas Huxley in his book on Hume, "the more complete must be the evidence which is to justify us in believing it." We do not need extraordinary controls when a scientist reports that a cockroach can push a plastic pill bottle six inches. But if a scientist reports that a cockroach or a live chicken egg can influence a randomizer by PK, or that a psychic can push a pill bottle six inches without touching it, then extraordinary controls are called for. No one has made this elementary point more eloquently than Huxley. That is why the vast majority of experimental psychologists demand stronger confirmatory evidence for psi wonders than they demand for the mostly dull and humdrum claims of "other areas of science." •

# Audiotapes of CSICOP's 1984 Conference Are Now Available!

If you couldn't attend "Paranormal Beliefs: Scientific Facts and Fictions," November 9 and 10, 1984, at Stanford University in California, you can now listen to the proceedings on tape.

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ROBERT SHEAFFER

# Psychic Vibrations

FIRE-WALKING IS an ancient ritual practiced in such remote and exotic places as the Fiji Islands, Sri Lanka, and Tibet, and it is now spreading among the natives in a place called California. The leader of the movement is Tolly Burkan of Twain Harte, in the Mother Lode country near Sacramento. He has been traveling through the state (and elsewhere) offering the curious an opportunity to walk on burning coals for a very modest $50 each. Scant mention is made of the third-degree burns Burkan's feet once suffered while fire-walking, as noted in the *Los Angeles Times*. That time didn't count, says Burkan, because he foolishly proceeded with a scheduled fire-walk in spite of having a fever, implying perhaps that the few additional degrees were sufficient to raise the temperature of his soles above the combustion point, although the cynic might respond that the fever could easily have prevented him from walking fast enough to avoid injury.

The entrepreneurial spirit of California being what it is, today a host of "fire-walking instructors," many trained by Burkan himself (who claims a "copyright" on this sort of thing), are working feverishly to fill this burning need. One of them is Tony Robbins of Los Angeles, who admits to having been seriously burned twice, once while on live television. (Robbins feels that the reporter's narrative caused his concentration to break.) Another is Larissa Vilenskaya of San Francisco, who recently emigrated from the USSR. Until recently, Vilenskaya pursued a successful career in both countries displaying "psychic powers" to scientists. Interviewed on KGO-Radio, San Francisco, on the morning of Friday, September 7, 1984, Vilenskaya told of her fire-walking seminar to be held that evening, inviting listeners to participate. No one has ever been injured, she assured them. One of the two reporters conducting the interview, Melody Morgan, announced that she would be participating in the fire-walk to prepare a news story on it.

From the *San Jose Mercury News*, Sunday, September 9: "Reporter Burned in Fire Walk. A San Francisco radio reporter sustained first- and second-degree burns on her feet while participating in a firewalking seminar. . . . Melody Morgan, 27, was injured Friday night when she walked across an 8-foot bed of orange-hot coals." It was later reported that another woman had also been burned that evening, although less seriously. Morgan's feet were described by the *Mercury News* reporter as "puffed and swollen, horribly blistered"; she was treated at a San Francisco hospital, then released. The following

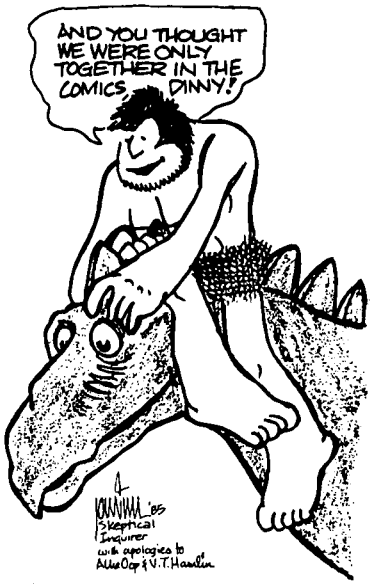
Monday morning, Morgan was back at work, giving her report, which included her tape-recorded shrieks. She explained that her "analytic mind" must have taken over, causing her concentration to break and her feet to burn. Either that, or she didn't walk fast enough.

* * * * *

Despite the best efforts of dedicated Arkeologists, Noah's Ark continued to escape detection in 1984. New reports claiming that investigators, including former astronaut James Irwin, had actually found the site of the Ark (see the UPI story of August 26) proved to be premature, and members of the creationist expedition complain that they were misquoted by the papers. As explained by John Morris of the Institute for Creation Research (ICR), explorers noted "a strikingly ship-shaped formation in the foothills some 30 miles southeast of Mt. Ararat." This spot was visited and examined, in spite of having been explored by previous expeditions in 1960 and 1973. Creationist Marvin Steffins called a press conference to announce, in Morris's words, that "he had indeed found a boat-shaped, ark-sized object on the mountains of Ararat, which given more research and documentation might prove to be the Ark of Noah." Morris was chagrined that the press assumed that Steffins "was announcing a discovery." Morris writes that the formation "is most unusual" but appears to be from natural causes, "evidently formed as a solid core of rhyolite was forced up into a mudflow from below," giving no hint how such a dramatic formation could have developed in the mere 6,000 or so years since the end of the week of creation.

In a separate ICR publication, Morris emphasizes that one cannot have a complete understanding of creation science unless one takes into account the Resurrection as well. "The two greatest events in the history of the cosmos were, first of all, its supernatural creation and, secondly, the resurrection of its Creator from the dead . . . all true science points to creation, and the best-proved fact of history is the resurrection . . . the creation requires the resurrection and the resurrection requires the Creator." Thus modern science, if it is to be modified in a manner acceptable to the creationists, must be expanded to include not only the Creation account, but that of the Flood and the Resurrection as well.

In a related development, the




*Bible-Science Newsletter* reports that Carl Baugh has discovered additional sites in Texas where he claims footprints of humans and dinosaurs intermingle. Of 150 new footprints, about 40 are said to be human, with a human handprint as well. Some of the footprints have "seeming cartwheel tracks," implying a novel method of escaping pursuing dinosaurs, with some footprints up to 25 inches long. Fred Beierle was able to carbon-date some wood that had been fossilized with the footprints, which "turned out to be about 4,000 years old, when we put in the constraining factors that we as creationists put in, allowing for a water vapor canopy before the Flood, which would have reduced greatly the input of Carbon 14 from space." Undoubtedly it is because the evolutionist scientists neglect to allow for the effects of the antediluvian atmosphere that they come up with such erroneously long values in their Carbon-14 dating.

* * * * *

In the Summer 1984 issue (p. 306) we reported how J. Allen Hynek's Center for UFO Studies, based in Evanston, Illinois, had fallen on hard times. Never one to give up easily, Hynek, as reported in the Winter issue, has now moved his UFO Center to Scottsdale, Arizona, where he says it is more appreciated. "People are more open-minded in Arizona," Hynek told a Chicago newspaper. "There's more of a willingness to accept new ideas out here than in Chicago, which is a hotbed of inertia." In that same interview, Hynek went on to explain how he was investigating incidents in New York where up to 900 people claim to have seen "a boomerang shape of light as large as a football field." He described this as "absolutely weird. There's no logical explanation for it." The November 1984 issue of *Discover* magazine contains a detailed explanation of these UFOs, caused by small aircraft flying at night in tight formation, sometimes with their landing lights on. The reporter visited the airport from which the flights originate, noting that the pilots involved have taken to calling themselves "the Martians."

Elsewhere on the UFO front, Betty Hill, whose alleged abduction by aliens in 1961 made such claims "respectable," continues to spot UFOs at a dizzying pace at her UFO "landing spot" in New Hampshire, where she goes as often as three times a week (*SI*, Fall 1978, p. 14). This past November, Mrs. Hill entertained a WBZ-TV audience in Boston by recounting her latest sightings. She said that a priest had asked to accompany her to the never-revealed site to see the UFOs. She had replied that he was welcome to come along, so long as he wore his collar. Mrs. Hill claimed that when they arrived at the saucer-spotting spot, the UFOs, apparently in honor of the priest, made a cross in the sky. •

# The Columbus Poltergeist Case: Part I

## *Flying phones, photos, and fakery*

James Randi

MARCH 1984 CAME in like a lion at the home of John and Joan Resch in the North Side district of Columbus, Ohio. Reporters who were called in to witness the evidence found broken glass, dented and overturned furniture, smashed picture frames, and a household in general disarray. The focus of all this activity seemed to be 14-year-old Tina, an adopted child who had shared the Resch home with some 250 foster children who came and went over the years.

Tina, a hyperactive and emotionally disturbed girl who had been taken out of school and was being privately tutored through the Franklin County Children's Services (FCCS), was interviewed by every media outlet who could get near the two-story frame house where these poltergeist activities were claimed to be taking place. Every day the street outside was jammed with vans and cars stuffed with television crews, reporters, and photographers who joyously tumbled over one another in their enthusiasm for what had become a circus.

Mike Harden, a reporter for the *Columbus Dispatch,* was the first on the scene. He had written an article on the Resch family some five months before, praising their work with foster children. He was aware that Tina was trying to trace her true parents—against the wishes of Mr. and Mrs. Resch, who felt it was not a good idea. One of their other adopted children had found his parents, and it did not turn out very well. In view of his previous encounter with the Resches, Harden considered himself a friend of the family.

During that first big press conference at the Resch home, more than forty persons were jammed into a 20' × 20' room. Participants described it to me as "rude" and "typically media." Comments from reporters we interviewed were:

"We didn't listen to what each of us was saying. We just jumped in."

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*James Randi, magician and lecturer, has been investigating psychic claims for more than 30 years. He is a founding Fellow of CSICOP and the author of* Flim-Flam, The Truth About Uri Geller, *and other books.*

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There was "no development of questions."

"We tried to find the truth. We're obviously not equipped to do it."

"It would have been much more comfortable with two teams—or three."

"It was a complete free-for-all."

"We were on her like flies on flypaper."

"Our attention was constantly diverted. When a reporter knocked something over by accident and took the blame for it, there was general disappointment."

Although the older Resches denied any prior belief in supernatural matters, they soon agreed that such goings-on probably resulted from a "poltergeist." This translates as, "noisy spirit," though some of the slightly less naive parapsychologists tend to ascribe these events to psychokinesis (PK) rather than ghosts. Since the record of past cases indicates that when these destructive phenomena take place very frequently an unhappy adolescent is in the vicinity and they cease when the youngster is recognized and satisfied, explanations other than supernatural ones immediately suggest themselves.

On March 5, photographer Fred Shannon, a 30-year veteran on the *Dispatch* staff, accompanied reporter Mike Harden to the Resch house to try to catch the elusive poltergeist events on film. By his own admission, Shannon was "afraid" of what might happen and was fully primed by Harden to witness miracles. During the first three hours of his visit, he took a remarkable series of photographs, but the actual story of how he and the public were apparently bamboozled by an adolescent girl is far more remarkable.

I have long believed that the major difference between the skeptic and the parapsychologist is one of expectation. The former does not believe that validation of paranormal claims is imminent; the latter depends upon that event for justification. Also, the skeptic will invoke parsimony—the simplest explanation consistent with the facts—where the parapsychologist eschews it. Personally, I find it much more reasonable, when objects fly about the room in the vicinity of an unhappy 14-year-old, to suspect poor reporting and observation rather than a repeal of the basic laws of physics.

It is true that the Committee for the Scientific Investigation of Claims of the Paranormal (CSICOP) was not invited to Columbus by the young lady at the center of these pranks, nor by her adoptive parents. But a call went out through the *Dispatch* for anyone who could help explain the phenomena. At that point, CSICOP chairman Paul Kurtz contacted me and asked if I would join Case Western Reserve astronomers Steve Shore and Nick Sanduleak in Columbus to look into the case. I arrived on March 13 and was met by a mob of generally hostile reporters at the airport. The official CSICOP statement released to them at the interview expressed the hope that we would be admitted to the Resch home to look

into the events first-hand.

When I arrived in Columbus via Chattanooga, Tennessee, where I had been lecturing, and was joined there by the other two CSICOP investigators, I had no guarantee from the Resch family that we would be allowed to actually investigate anything. Upon reaching the house, Steve Shore asked Tina's parents whether we would be welcome. Mrs. Resch—as was her right, of course—said that the two astronomers could enter but not the "magician." She said it would be "sensationalizing" the matter to allow me access to the site. I did not see how she could honestly say that in view of the commotion brought about by the great number of press conferences and interviews that had taken place in the house. On one of those occasions there were, by actual count, more than 40 reporters, cameramen, and others rampaging about. The Resch case had become a major—though transitory—media event, featured all over the world.

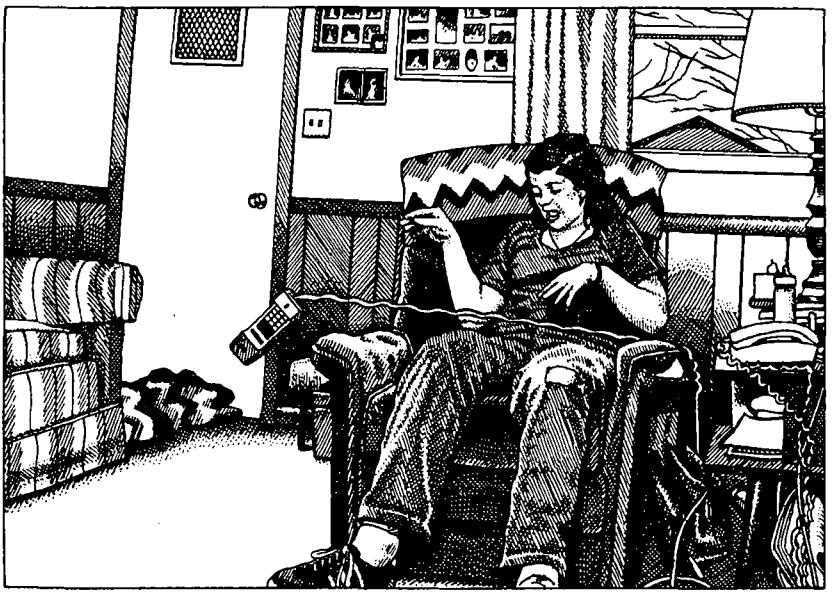
But when we arrived the Resch home was already occupied by two investigators from the Psychical Research Foundation of Chapel Hill, North Carolina. William Roll and Kelly Powers had been enthusiastically welcomed to the house, and they had been living with the family for several days. Roll is the author of *The Poltergeist,* which J. B. Rhine referred to as "a book on . . . what to do with a poltergeist until the parapsychologist comes."

When asked why I had been refused admittance to witness the events—and we specified that we wanted to go in *after* Roll and Powers, so as not to interfere with them—Mrs. Resch told reporters that Roll had insisted that I not be admitted. Roll denied this, saying that it was her ruling, not his. Later Mrs. Resch said, "We have a circus going already, and I don't need a magic show as well."

Roll said he would have let me in "if the conditions had been completely up to me, and if there had been no problem about the health situation." He was referring to Mr. Resch's recently elevated blood pressure. But reporter Dave Yost of the *Columbus Citizen-Journal* told us that Roll had told him that he simply "didn't want Randi in there."

Following the departure of Roll and Powers, the Resch family told us they were leaving on a long vacation and would not be available for an interview with us. However, we discovered that they were still in their house two weeks after that announcement.

Because of the inaccessibility of the Resch home, the evidence we gathered centered around the film that was shot by photographer Shannon. One photo printed from the roll of 36 negatives (frame number 25) was published around the world as part of an Associated Press release. I had first become aware of the case from seeing the AP story in a Chattanooga newspaper. As a result of that one photo and its caption, much of the reading public now apparently believes that it represents a genuine example of either psychokinesis or spirit possession. This photo shows a telephone



Frame 25. This is an artist's rendition of the widely published photo sold by the *Columbus Dispatch* to Associated Press.

suspended in mid-air in front of Tina Resch while she cowers in fright. We called it "Attack of the Flying Killer Telephones" since the accompanying text said that the child was being assaulted regularly by these objects. The photo clearly shows that two telephones had been placed on the table at Tina's left side and that the handset of one of them is in motion in front of her. The cord is stretched out horizontally and shows transverse blurring.

Although it apparently had not occurred to any other investigators—including the parapsychologists—we asked to see the other 35 photos on that roll of film. We discovered seven flying telephones in all, and when the photographer admitted he had not been looking at the subject when taking the photographs, there was little mystery left.

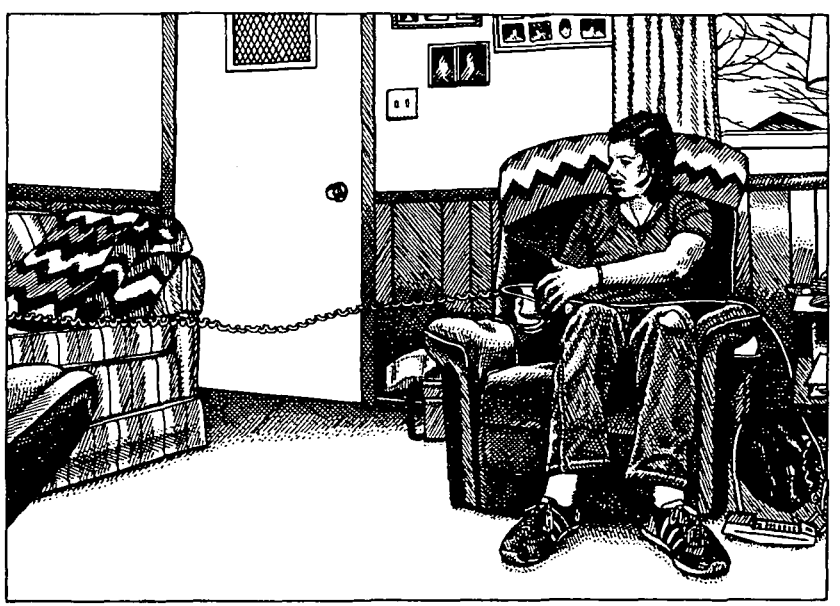
Shannon had found that holding the camera to his eye and waiting for an event to occur was useless. It always seemed to happen just after he had relaxed and looked away. He referred to "The Force" when he spoke of the phenomenon. "It was tricky, and I would have to be tricky if I were to capture it on film. I decided I would outfox the force," he said. While Tina sat in a soft chair with two telephones within easy reach, Shannon looked away. When he saw a movement from the corner of his eye, he pressed the shutter. One result was the photo of Tina used by AP.

Now these photos were taken at 1/125th of a second, using a strobe flash. Shannon used a wide-angle lens, of 24 mm focal length, which subtends an angle of 84 degrees. Further evidence of the wide-angle lens is seen in the distortion of objects and persons at the margins of each frame.

(For comparison, a "normal" lens of 50 mm focal length covers only 45 degrees.) Thus the cameraman would have to be much closer to the subject than might be supposed from the wide area shown by each photograph. If Shannon was, as he has said, "turned away" from the subject, and yet seated as close as he apparently was, he could have had no appreciable perception of whatever action really took place.

None of Shannon's photos were taken in rapid succession, since the strobe flash (a Vivitar) would not have recycled in time. Only one of them, number 25, was published worldwide. Recall that this classic photograph shows transverse movement of the telephone cord. The others do not. In one of the other flying-phone photos, frame number 30, it can be seen that this blurring took place along the length of the cord. Any blurring shown in the photos was a result of the film registering ambient room light (from the nearby window) since the strobe flash lasts about one-thousandth of a second, freezing almost any rapid action. The conclusion is obvious: Frame 25 shows that movement of the telephone was caused in a different fashion than was the movement in frames 24, 30, 31 and 32—those in which telephones are actually frozen in flight. (Two others record the scene after the phone had fallen to the floor.)

What is different about the flying telephone in frame 25? Well, examination of frame 24, immediately preceding the photo published by the *Dispatch* and the AP, shows a strange situation. The phone cord is seen here already stretched out in front of Tina Resch, spanning the arms of

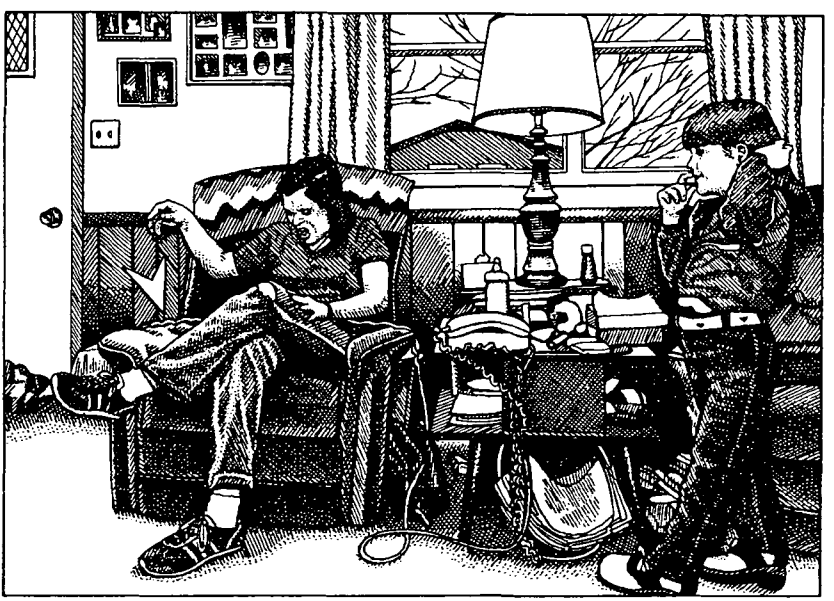


Frame 31. Tina appears to have been *holding* the phone base, and has *thrown* the handset out of frame. Note the foot of an (un-named) observer at the left margin.

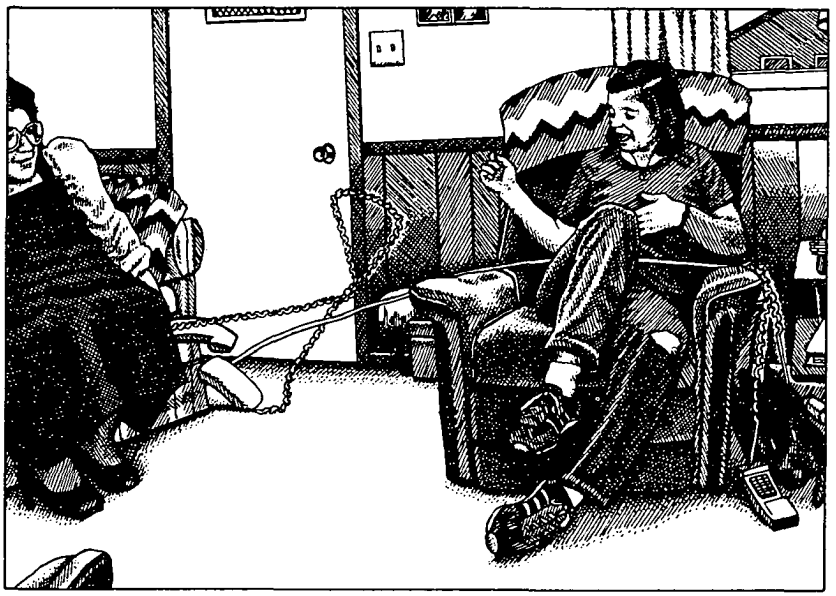
the chair in which she is sitting, stationary, with the attached handset out of sight at her right, hanging down behind the side of the chair. Tina, typically, has her mouth open in a scream. (And there is a little girl—Miss "X"—standing and watching on the right. She was an eyewitness to this event and shows up in five other frames as well. We'll refer to her later.)

Simply by grabbing the phone cord at a spot near her right hand and yanking it hard, Tina could have caused the phone to fly up into exactly the position shown in the published photo, number 25. (We were able, at NBC-TV, to replicate this effect easily.) But looking at the other flying telephones that are revealed on the roll of film, we see longitudinal blurring, which indicates that Tina probably simply threw the telephone from camera right to camera left. In photo 12, Miss "X" is looking at the camera as if wondering whether that throw was convincing.

In photo 29, both telephones appear to have been in motion. Surely, it could be objected, if Tina simply tossed these phones around, she could not have tossed both of them without being caught at it! She surely would have been seen holding the phones, preparatory to throwing them when the "witnesses" were relaxed and looking away. A possible answer to this objection can be found when we examine frame 28, which shows Tina had a great deal of latitude in handling the equipment. She is freely holding the telephone apparatus in her hand while in animated conversation. It is evident that she, like other "psychics," is running the show her way, regard-



Frame 24. By grasping the cord at the arrow, Tina could cause the phone to fly up into the position shown in frame 25.



Frame 32. The major witness watches as the phone "flies" at her. Again, note the foot of the other observer of this miracle.

less of any requirements of security or control.

Frames 13, 22, and 28 show Tina similarly occupied, with the ubiquitous and mysterious Miss "X" once more present. During this entire photo session, it seems that an atmosphere of rather loose gaiety prevailed, but we are told that that's the only way these things are expected to take place. Reporter Harden shows up in four frames, numbers 14, 21, 22, and 23. He is, in every case, either obediently not watching Tina, so as not to inhibit her performance, or paging through a phone book.

But there is another frame, number 32, in which a new witness appears at the left edge of the photo during a flying-phone event. We asked the *Dispatch* to identify this woman, but got no help at all. Finally, through a reporter in Cincinnati, we learned that she was Lee Arnold, Tina's caseworker. We contacted Ms. Arnold by phone, and she told us that she had been instructed by her employers, Franklin County Children's Services, that if she gave any information about her witnessing the events she would be in danger of losing her job. She told us nothing.

And what of that other frequent witness, little Miss "X"? She remains a mystery. Obviously, she could reveal a great deal about Tina's actions during the time those photographs were being taken. But try as we may, no one will inform us how we may contact her. That is most unfortunate, since her testimony might reveal very interesting data.

It is the last of the flying telephones on Fred Shannon's film that

really asks a great deal of our patience. It shows Tina Resch seated in the chair, her pointing left hand extended to her right across her body. The telephone cord is horizontally stretched out and the telephone handset is so far away as to be out of the frame altogether. Tina is in a stance suggestive of a major-league baseball player completing a throw to first base. Now, with the simple principle of parsimony in mind, we must ask ourselves if we will choose to believe that this is a photograph of a girl being affected by poltergeist activities or a photograph of a girl simply pitching a telephone across the room.

As I have said, the Resch household was inundated by the media. And, as luck would have it, Tina was caught cheating by them—though not by the parapsychologists who were the officially sanctioned investigators. On the only occasion that she believed she was not being observed electronically while television equipment was present, she was caught red-handed—twice—as can be seen in a news tape obtained accidentally by WTVN-TV, Channel 6 (ABC), Cincinnati. It happened at the end of a long press visit on March 8. The TV crew was packing up their equipment, but had left a camera aimed at Tina. Seated at one end of the sofa, near an end-table, and believing the camera was no longer active, she watched carefully until she was unobserved, then reached up and pulled a table-lamp toward herself, simultaneously jumping away, letting out a series of bleating noises, and feigning, quite effectively, a reaction of stark terror. It matched other performances quite well. The lamp, on the first try, did not fall. Encouraged by the reaction, the girl then repeated the performance. This time, the lamp toppled to the floor. The TV crew hurried away to process their videotape for the next news broadcast, unaware that Tina's cheating had been recorded.

Discovering the imposture, WTVN-TV broadcast the tape, asking their viewers to make up their own minds about the event. Tina, confronted with the evidence after the broadcast, said coyly, and with much squirming about, that she was "only fooling" and did it because she wanted to get rid of the TV cameraman.

We may never see the rest of the TV tape as it was originally shown to the CSICOP team by WTVN-TV in their remote unit before it was edited. I pointed out to the TV crew at that time certain notable aspects of that tape and asked if I might have a complete copy of it. A copy was delivered to me, but I found that it consisted of only the portion that had been edited down for broadcast. When I asked about this I was told that I could not have the remainder, and when I reminded them of their promise to me they suddenly discovered that they had erased it—in error.

The missing portion of the videotape showed Tina Resch carefully and obviously setting up the trick. She edged around the sofa, glancing about her to be sure she was not being observed—not knowing the video camera on the floor was still connected, of course—and reaching up to test

the height of the lamp shade. A moment later, thinking that she was safely unobserved, she is seen yanking at the shade and jumping away simultaneously, putting on her frightened act. Then she sets it up again and repeats the performance.

In frame number 20 of Fred Shannon's film, we see Tina doing the same trick. That same lamp falls in the same position, with her seated in the same place. Was this one, too, "only fooling"?

To take the edge off the cheating episode, after admitting that Tina had been caught, *Dispatch* reporter Mike Harden reassured his readers that WTVN-TV had witnessed a genuine miracle that same night: One of them had seen a table move mysteriously in the kitchen. But technician Robb Forest of WTVN told us that he'd caught Tina moving that table secretly with her foot, had accused her of it, and got only a horse-laugh from her for his trouble.

Similarly, Mary Anne Sharkey (a good friend of Mike Harden) of the *Cleveland Plain-Dealer* reported to us—but not her readers—that Tina's obvious hanky-panky with a candlestick had disillusioned her on the story. She had been there with three other reporters, two photographers, and a TV crew when Tina pointed out to her a candlestick located in a plastic wreath under a table. Sharkey wondered why it had been pointed out. One hour later, after they had all moved about the house, Tina announced that the candlestick had vanished, and she began looking for it. With Sharkey following her around, Tina "found" it under a chair. Sharkey was unimpressed, but this did not become part of her story. Instead, she reported another episode that seemed more convincing.

NBC-TV news reporter Bill Wolfson, at first fascinated by Tina's performances, changed his mind after prolonged exposure to events, contradictory reports, and reconsideration of what he actually saw—or didn't see. As for the press conferences, he said, "I thought the tone and quality of questions were somewhat less than poor. They were provocative and leading. The media were going crazy. One reporter asked Tina, 'Don't you feel guilty?' " Wolfson finally summed it up for us as "bunk."

While he snapped frame number 26, photographer Shannon, as he looked elswhere awaiting a miracle, must have believed that something "psychic" was happening. It shows the footrest at the base of a "recliner" chair in the extended position, and Tina looking startled—as if it had suddenly popped out. I have one of these chairs at home. To make the footrest protrude, one need only grasp the arms firmly and push back. This is the only photograph among the 36 in which Tina is holding the chair arms. Her startled expression would indicate to me only what she has proven in the past (as in the videotapes)—that she is an excellent actress.

The *Dispatch* naturally had a fine time with this story. One Sunday edition contained a huge spread on the subject. Two new photos were

## The Poltergeist Story: A Note to Readers

WHEN THIS report was originally planned, we intended to show you a number of photographs upon which most of the evidence concerning the Columbus poltergeist case is based. When the team from the Committee for the Scientific Investigation of Claims of the Paranormal (CSICOP) first responded to the open request from the *Columbus Dispatch* newspaper for an investigation of the case, it was able to obtain only a few 8" × 10" prints and a complete "contact sheet" (same-size prints) from the 35-mm film roll at the *Dispatch* photographic department. When strong indications of trickery by Tina Resch were immediately apparent, and we pointed out to *Dispatch* managing editor Richard Otte that a more careful examination of the film would have revealed this evidence, it suddenly became impossible to obtain additional prints, for either examination or publication.

Courtesy of *Discover* magazine, we were able to produce 8" × 10" blow-ups of the individual frames on the contact prints, and thus were able to have the other material we needed. Inquiries to the *Dispatch* from both *Discover* and the *Columbia Journalism Review* resulted in the response that its roll of film was now "locked up" and that prints were unavailable. However, readers should know that the *Dispatch* office discussed both price and possible usage of the requested photos with *Discover* and *CJR*, only to slam the door on access to them when they were told that information on negative frame-numbers had been obtained from James Randi. It appears that the *Columbus Dispatch* now realizes its error in judgment in failing to properly research its numerous stories on this matter and is attempting to discourage any further discussion of the case.

On August 24, 1984, the editor of the SKEPTICAL INQUIRER wrote to Otte, formally requesting, on behalf of CSICOP and the readers of *SI*, permission to publish the photos in question (which

shown. One (frame 17) shows Tina holding an already-broken picture frame. One can clearly see that the glass is broken, and Tina is holding it like a tray, with the shards of glass retained on it. The *following* photo (18) shows her tilting it forward to dump the glass. But in that Sunday newspaper account, we see that the caption for the *second* photo says, "Below, the picture shatters in her hand and falls to the floor."

we already had in our possession). He appealed to the newspaper's sense of journalistic integrity and said, "We feel they [the photos] are an essential part of the evidence in this case." When no answer was received, he telephoned Otte, who said he and his editor had decided not to grant permission. He said the *Dispatch* had already been hurt enough by Randi's disclosures and it didn't make sense for it to continue hitting itself over the head with a hammer. He said he felt Randi's statements had been unfair. When the *SI* editor protested that the *Dispatch*'s denial served to withhold facts essential to the resolution of the case, Otte countered, "Randi has no facts." Said Otte: "The only mistake we made was to let Randi have the photos in the first place."

On December 11, CSICOP chairman Paul Kurtz wrote to Luke Feck, editor of the *Columbus Dispatch,* asking the newspaper to reconsider its decision. He said publication of the photographs would contribute to open scientific inquiry and help clear up an important issue that has aroused scientific interest. "To be denied this request is in effect censorship and prohibits the full scientific record from being published. To deny the request . . . is to violate the principles of a free press and . . . the public's right to know." He emphasized that we would pay the newspaper's normal fee. Its permission to publish the photographs, he concluded, "would contribute greatly to the open exchange of information and the exercise of a free press and responsible journalism."

Feck replied two days later. His letter criticized Randi, whom he referred to only as "a magician" and "Amazing What's-his-name," and concluded: "Permission to reproduce the photographs is denied. I have discussed this matter with our publisher and he concurs with my judgment. . . . This letter is not for publication."

Unable to legally publish the photographs, we arranged to have an artist make sketches from several of the more important ones. They accompany this article.

This is not a responsible representation at all. Reporter Dave Yost, who attended the Resch press conferences and followed Tina all the way to North Carolina when Bill Roll took her there for further observation, was frustrated by the attitude of the media. He said, "The real story here, I suspect, is the reaction of a duped media." Added Yost, "In spite of repeated efforts, I have never seen these reported events."

To return to the Shannon photos: In frame 21 (with reporter Harden studiously looking at the phone book at the right) we see a rollaway couch "jumping out" from the wall at Tina, who is again startled at another wonder of poltergeistry. But examination of a small lower section of a previous frame, this time taken from 90 degrees away with Tina standing in front of that couch holding an object for photographer Shannon, reveals an interesting fact: Tina clearly has her right foot hooked under the edge of the couch! A sudden pull backwards and the couch would "jump out" at her easily. We don't know if that is how it was done when she was later "attacked" by the couch. But there is ample evidence here to believe that it might have happened that way, and none to show that it did not.

Admittedly, our team was not able to conduct a proper investigation of the Columbus poltergeist case. We were barred from the house and we never interviewed the girl involved. We could not trace one of two eyewitnesses to the photographed events, and the other witness was forbidden to tell us what she knew.

Witnesses we could identify were less than cooperative. Barbara Hughes, a neighbor and good friend of the Resch family and also a foster parent, spoke briefly with Steve Shore by phone, but refused to meet with us. She claimed to have seen one phenomenon while in the house. She said she addressed "The Force" out loud, demanding a demonstration. Something "fell," and she fled in terror. Drew Hadwal, working with WTVN-TV, "saw three chairs move apart" in the kitchen, we were told. I tried hard to reach him, but though the receptionist at Channel 6 said she knew he was in, when I gave my name over the telephone I was told that he was not going to be at work that day. Even electrician Bruce Claggett (to whom we will return in Part II) failed to return our calls and, although he was scheduled to be on the program with me at the annual meeting of the Parapsychological Association, he failed to appear.

Several reporters we did interview told us of damning details they had observed but never reported. One expressed his anger at the rewrite artists who had "fluffed up" his stories to the point where they were hyperbolic. The *Columbus Dispatch* gave endless excuses why we could not meet Fred Shannon to discuss the evidence with him during our stay in Columbus, and reporter Harden eventually was "out" to us when we tried to call on him.

On the other hand, Bill Roll actually stayed at the Resch house. He stated his professional conclusions twice during a press conference before taking Tina off to his lab in Chapel Hill. He said that, based upon stories told by witnesses, neurological and psychological tests of Tina, and his own experiences (during a half-hour period in the last hour of the last day of three he spent in residence) "when I felt I had Tina under close observation" he concluded that she had demonstrated "genuine recurrent spontaneous psychokinesis (RSPK)." Then he admitted that though he was

"impressed . . . we are not dealing here with a controlled study, [but it was] sufficiently suggestive of RSPK." He added that his research was "in a very preliminary stage" and that he had come to "no definite conclusions."

Roll's evidence is based on a very short term of observation, with no other witnesses present and no direct experience of any event—only peripheral observations. His data consists of uncorroborated witnessing of a very few events, which he admits took place out of his direct line of sight at times when he was unable to anticipate them.

This is how he reported the events to the press conference: Immediately prior to the rush of phenomena, Tina had spent some 30 minutes upstairs, alone (only the two of them, so far as he knew, were in the house). Then she appeared at the top of the stairs screaming for him to rush up there and see miracles. A bar of soap, he reported, fell into the bathtub. Next, while they both were standing four feet from it, facing away, a picture fell from the wall. The nail had been pulled out of the wall. Roll and Tina rushed to it. Roll hammered the nail back with a pair of pliers. During this process, his small tape-recorder, which had been placed nearby on a dresser, flew to a position seven feet away. Roll and Tina went to it, Roll leaving the pliers behind. The pliers "moved from the dresser" to hit the wall near him.

Roll described his own observing abilities in such a way that we must place his performance in the paranormal category. Or, at the very least, he had to have rather remarkable sensory powers. Consider: (a) He was hammering a nail back into a wall using the edge of a pair of pliers (he called them "tongs")—an act that requires undivided attention, obviously; (b) he was "watching Tina carefully" (contrast this with his statement that he "felt he had Tina under close observation") and remember that the "possessed" girl was standing off to one side of him; and (c) he saw the tape machine fly away from a position directly behind him—a remarkable feat indeed, especially when the layout of the room is known. (See Figure 1.)

Questioned, he admitted he had not once seen any object in place as it began to move. I postulate that, since he could not see the tape recorder, Tina had ample opportunity to throw it along the dresser, from which position it fell to the floor. Then she picked up the pliers as the two of them went to recover the tape recorder and threw them against the far wall as Roll examined the recorder. It was an assumption on his part that the pliers "moved from the dresser." He said, "She wasn't doing anything with her hands that I could see." (Roll is myopic and wears thick glasses; he is a poor observer.)

An examination of the videotape made in that room shows that the dresser on which the tape recorder sat was directly behind Roll as he faced the picture on the wall! He could not have seen it move. It is an impossible

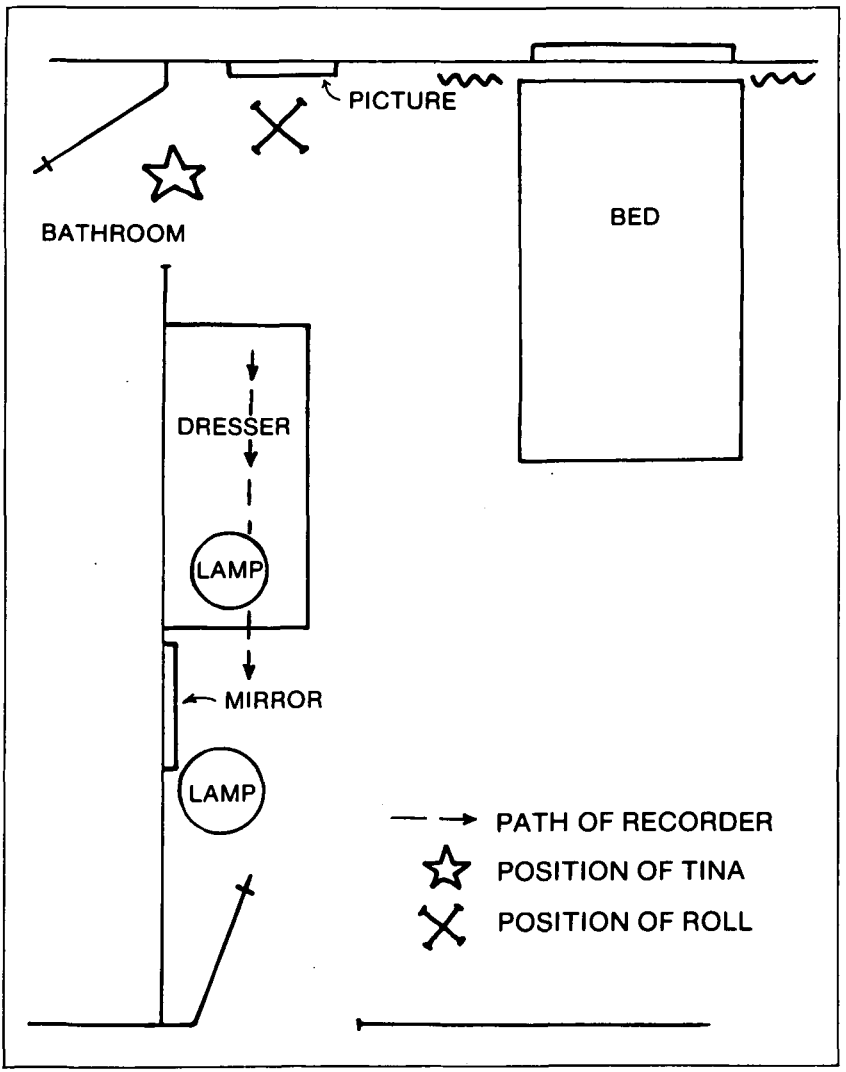



FIGURE 1. Layout of room in which Roll claimed tape recorder and pliers moved.

scenario.

But why would Tina Resch want to smash up her home and allow others to believe it was a paranormal event? Factors are found here that suggest strong motivation on her part to create a sensation. She was admittedly under stress and had good reason to want to attract media exposure: she wanted to trace her true parents, against the wishes of the Resches. And her "best friend," Missy Johnson, had a fight with her and broke off their friendship two days before the phenomena began. She was

a girl looking for attention. And she got it.

The evidence for the validity of poltergeist claims in this case is anecdotal and thin, at best. The evidence against them is, in my estimation, strong and convincing. •

*In Part II, we will examine evidence offered by the most important witness of the phenomena exhibited in the presence of Tina Resch—photographer Fred Shannon. His address to the Parapsychological Association and a feature article in* Fate *magazine are compared with his own photographic record. We will meet electrician Bruce Claggett, who gave strange and contradictory accounts of the wonders in the Resch household. Other possible causes of the phenomena are discovered and evaluated, and evidence ignored by the media is brought to light.*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# The Moon Is Acquitted of Murder in Cleveland

## *Attempted replication of Lieber's Cleveland 'lunar effect' study finds no relation between homicides and either moon phases or tidal forces from 1971–1981.*

N. Sanduleak

IN HIS BOOK *The Lunar Effect* (see review by Abell, 1979), Miami psychiatrist Arnold Lieber (1978) proposes that the moon is able to adversely affect the mental and emotional stability of humans by means of raising physiologically disruptive "biological tides" in our bodies akin to the tides it raises in the earth's oceans. Because the human body is substantially composed of water, this analogy (which smacks of sympathetic magic) can seem highly plausible to the general public, which is unaware of the infinitesimal tidal action the moon has on an object as small as a human. (See Abell's review for a numerical evaluation of this inconsequential tidal force.)

The "biological tides" theory was invoked by Lieber to explain the results of a study by Lieber and Sherin (1972) that purportedly showed that the incidence of successful homicidal assaults in two localities (Miami and Cleveland) was significantly higher at or near the times of *both* the new and full moon, when the combined lunar and solar action is near a maximum. This study has often been cited in the media as providing scientific proof of what, we are told, every policeman, bartender, and emergency-room attendant knows to be true—that people tend to act crazy and become more violent when the moon is full. Note, however, that this popular notion makes no mention of a similar rampage at the time of new moon, which would be required by the proposed tidal mechanism.

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Other studies, e.g., Pokorny (1964), Pokorny and Jachimczyk (1974), and Lester (1979), found no correlation between frequency of homicides and lunar phase. Lieber has challenged these studies as being improperly conducted, in that they used the conventionally recorded time of death of the victim rather than the actual time of the assault per se, which presumably would be more closely synchronized with the malevolent lunar influence. As Abell noted, this should hardly matter if there is a strong correlation with lunar phase, since Pokorny found that 85 percent of homicide victims die within one hour after being attacked. Lieber also claims that a comparison of the Miami and Cleveland results indicates that the exact timing of peak homicidal periods is a function of geographical location.

Thus, according to Lieber's criteria, the only valid method for replicating his results would involve another study in Miami or Cleveland also using the time of assault. I have made such a replication study for Cuyahoga County (greater Cleveland). The results are the subject of this report.

TABLE 1

Homicidal Assaults in Cuyahoga County
January 1, 1971, to December 31, 1981

| Phase Day | Assaults | Phase Day | Assaults |
|---|---|---|---|
| 1 | 119 | 16 | 100 |
| 2 | 120 | 17 | 124 |
| 3 | 122 | 18 | 102 |
| 4 | 111 | 19 | 117 |
| 5 | 121 | 20 | 126 |
| 6 | 106 | 21 | 118 |
| 7 | 119 | 22 | 119 |
| 8 | 103 | 23 | 108 |
| 9 | 126 | 24 | 108 |
| 10 | 135 | 25 | 108 |
| 11 | 104 | 26 | 116 |
| 12 | 105 | 27 | 94 |
| 13 | 104 | 28 | 104 |
| 14 | 125 | 29 | 118 |
| 15 (Full) | 121 | 30 | 67 (127)* |
| | | | Total 3370 |

*Normalized value based on the use of 64 synodic periods of 29 days duration and 72 synodic periods of 30 days duration giving a mean synodic month of 29.5294.

The data were again graciously provided by the statistical department of the Cuyahoga County Coroner's Office. The Lieber-Sherin sample involved 2,008 homicides during the 13-year period from 1958 to 1970. The present study begins where they ended and includes 136 lunar synodic periods between January 1, 1971, and December 31, 1981. Our much larger sample (3,370 homicides) over a two-year-shorter interval sadly reflects the increased level of violence during more recent times. As was done in the earlier study, only those cases (96 percent) were included where the date if not the hour of the assault was well-established. The method for assigning the lunar-phase day for each calendar day followed exactly that used by Abell and Greenspan (1979) in their investigation of a correlation between birthrate and lunar phase. By definition, lunar-phase day 15 coincides with the day of the full moon. Table 1 gives the observed numbers of homicidal assaults as a function of the lunar-phase day. In Figure 1, our results are compared with those given on page 47 of *The Lunar Effect,* where, by the way, the mean is incorrectly shown to be 70 rather than the actual value of near 67.

The standard chi-square test applied to our sample gives values

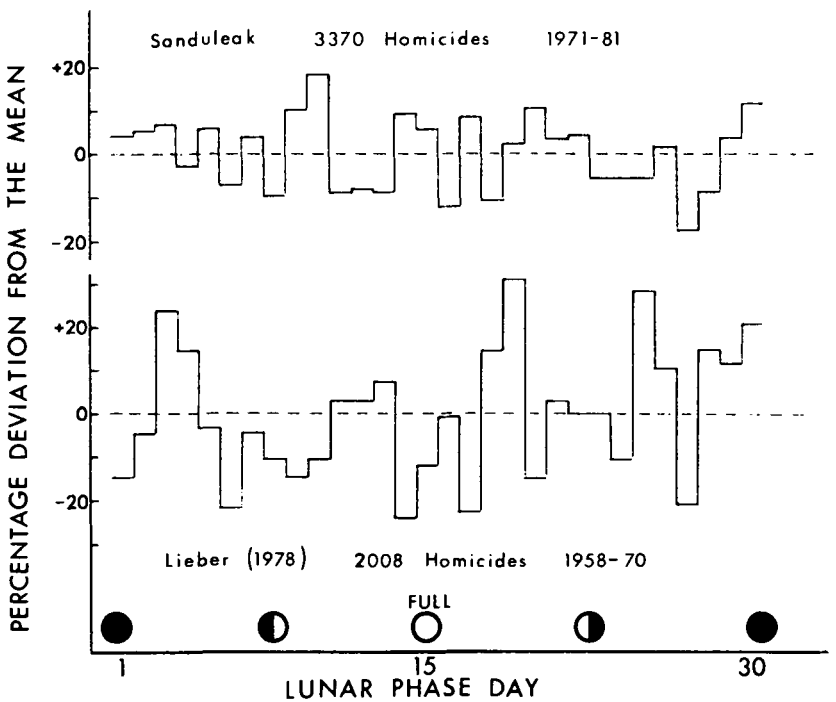


FIGURE 1

Comparison of the two studies of the Cuyahoga County homicidal assault rate versus lunar phase.

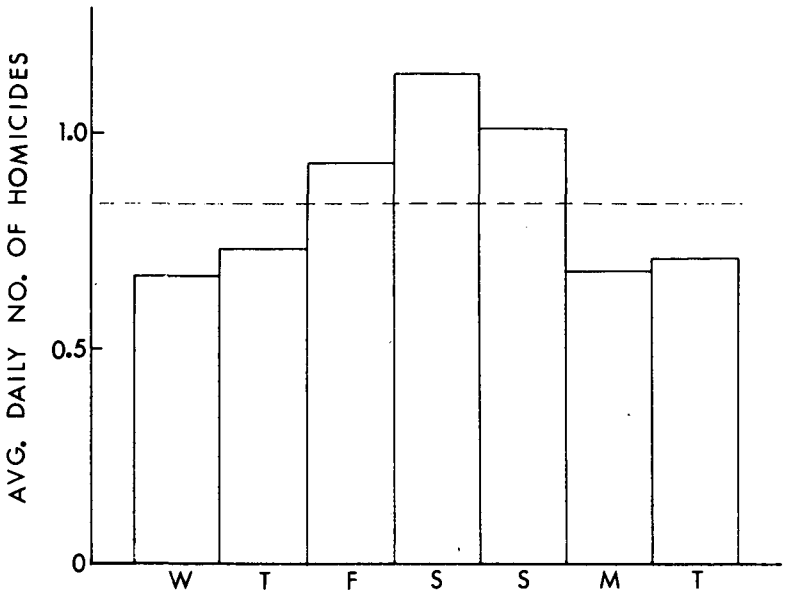


FIGURE 2
Frequency of homicidal assaults in Cuyahoga County versus the day of the week showing the "weekend effect."

($\chi^2 = 25.09$, $df = 29$, $p = 0.67$) that indicate with a high degree of probability that the day-to-day fluctuations in homicidal assaults are random in nature and are not correlated with lunar phase. The "homicidal peaks" found by Lieber and Sherin to lag several days behind new and full moon (note that a third peak near third-quarter moon was ignored by them because it did not fit the tidal theory) are therefore most likely to be nothing more than statistical artifacts. Rotton, Kelly, and Frey (1983) were able to obtain the raw data used by Lieber and Sherin for their Dade County (Miami) study and concluded from an independent analysis that no lunar phase relationship could be demonstrated. Thus the conclusions drawn by Lieber and Sherin from both their Cleveland and their Miami samples have now been shown to be invalid.

One very well known correlation did emerge from our study. As is shown in Figure 2, "Saturday night special" is a justified nickname for a small handgun. This marked increase in homicidal attacks on weekends (undoubtedly related to increased alcoholic intake) is not even mentioned by Lieber. Note that for intervals of about three months the full and new moon can become temporarily synchronized with weekends; that is, they will occur on Friday through Sunday. Thus, in correlation studies covering only a few months, it is possible to statistically confuse this very real "weekend effect" with a putative lunar effect. In very long term studies, such as this one, this is not a problem, since full and new moons will occur

with essentially equal representation on each day of the week. Our data also show the well-known seasonal effects, in that slightly above average numbers of assaults took place during July and August (short tempers in hot, muggy weather) and during December and January (increased hostility due to cabin fever?).

Although Lieber is quick to suggest a "biological tides" theory, it is obvious from his discussion that he does not fully appreciate the nature of the lunar and solar tidal action. The magnitude of a tidal force varies as the inverse cube of the distance of the tide-raising body. Since the orbit of the moon about the earth is slightly elliptical, its distance varies by as much as 14 percent, which causes a variation of about 60 percent in its tidal action. The point of closest approach to the earth (perigee) and the point of greatest distance (apogee) occur at differing phases from one month to another. Thus it is possible for the tidal action of the moon to be actually *greater* at the first- and third-quarter phases (with the moon at perigee) than it is at full or new moon (with the moon at apogee). It is the addition of the solar tidal component (roughly half as large as the lunar component) that causes the *combined* lunar and solar tidal action to be maximized near the new and full moon phases. Thus, given the proposed tidal mechanism, Lieber's book should have properly been entitled "The Luni-Solar Effect."

Since the variation in lunar phase is not an exact measure of the variation in luni-solar tidal action, it was necessary to extend and complete this study by providing the results shown in Table 2. Here the frequency of homicidal assaults (same data as used in Table 1) is given as a function of the Tidal Index. The Tidal Index was devised by the author as a numerical value that is approximately proportional to the magnitude of the luni-solar tidal force. It derives from a simplified model that takes into account the relative positioning of the sun, earth, and moon and the varying earth-moon and earth-sun distances but assumes that all three bodies move in a

TABLE 2

The Number of Homicidal Assaults as a Function of the Luni-Solar Tidal Index

| Range in Tidal Index | Number of days | Number of Assaults Observed | Expected |
|---|---|---|---|
| 0.97-1.19 (LOW) | 764 | 640 | 640.79 |
| 1.20-1.49 (MID) | 2460 | 2048 | 2063.26 |
| 1.50-1.72 (HIGH) | 794 | 682 | 665.95 |
| Totals | 4018 | 3370 | 3370.00 |

common plane. A BASIC language program was written to carry out these lengthy computations on a personal computer. The Tidal Index ranges from a minimum value of 0.97 at the smallest possible neap tide (e.g., June 30, 1971) to a maximum of 1.72 at the greatest possible spring tide (e.g., January 8, 1974). A test of the data in Table 2 ( $X^2 = 0.50$, $df = 2$, $p = 0.78$) gives no indication of a relationship between assaults and the Tidal Index.

In conclusion, this study found no evidence that the frequency of timing of homicidal attacks in Cuyahoga County, Ohio, during 1971-1981 was related in any way to the phases of the moon or the action of luni-solar tidal forces. Nationwide data for both homicide and suicide likewise show no relationship to lunar phase (Lester, 1979; MacMahon, 1983). Indeed, a survey of the literature by Campbell and Beets (1978) found that no conclusive statistical evidence existed for the reality of any kind of lunar effect on human behavior. More recently, Rotton and Kelly (1984) applied the meta-analysis technique to 39 lunar-effect studies in the literature and drew the same conclusion.

How then does one account for the anecdotal testimony so readily provided by police, bartenders, and maternity-ward nurses? I would propose the following speculations. On a particularly busy or memorably stressful day, an emergency-room attendant (or any person dealing with the public) turns to a colleague and says: "Wow, things are really going wild around here today. There must be a full moon." Of course no one takes the trouble to determine or record the actual lunar phase, but everyone within earshot of the that oft-uttered remark is likely to subsequently recall that there *was* a full moon on that unusually eventful day. Numerous repetitions of this scenario over the years might help convince someone that they have personal experience of the moon's ability to influence human behavior. I seriously doubt, however, that even the most ardent proponents of a lunar effect could specify the current phase of the moon when tested on the spur of the moment. I have tested audiences and found that only a very small percentage could. Another likelihood involves people selectively remembering occasions when a full moon did indeed coincide with unusual activity (probably on a holiday or weekend) while they disregard all those times when nothing much happens at full moon or when total mayhem reigns near the quarter phases.

Clearly, it is these psychological factors and the role of the media in the propagation of this now remarkably pervasive and often deep-seated delusion that constitute the "lunar effect" most deserving of further investigation.

## Acknowledgment

I would like to thank Mrs. Liz Tidwell of the Coroner's Office and Dr. Steve Shore for their assistance in the compilation of the data used in this study.

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# The Image of Guadalupe: A Folkloristic and Iconographic Investigation

*A two-part investigation into both legend and image finds overwhelming evidence against authenticity.*

Joe Nickell and John F. Fischer

MEXICO'S IMAGE OF GUADALUPE is a sixteenth-century depiction of Mary, the Virgin Mother of Christ in the New Testament, upon a cactus-fiber tilma (or cloak). She is dressed in robe and mantle, her hands pressed together in prayer, and at her feet are an angel and a crescent moon. According to pious legend the Virgin caused the image to appear miraculously as a "sign" to a skeptical bishop so that he would build a shrine to her. "Yearly," according to Jody Brant Smith's *The Image of Guadalupe* (1983, p. 4), "an estimated ten million bow down before the mysterious Virgin, making the Mexico City church the most popular shrine in the Roman Catholic world next to the Vatican."

So popular is the image itself that "you will find every imaginable representation of her in the churches. . . . You may find her outlined in neon as part of a downtown spectacular, chalked into a hillside, on a throwaway advertising a mouthwash, pricked out in flowers in public parks; clowns and hucksters will distribute booklets about her as a preliminary to hawking patent medicines. . . . Bullfighters have her image woven into their parade capes; she is a popular tattoo subject; almost everyone wears her medal." Her full title is "The Most Holy Virgin Mary, Our Lady of Guadalupe, Queen of Mexico and Empress of the Americas" (Demarest and Taylor 1956, p. 2).

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In the United States is at least one monastery bearing the name Our Lady of Guadalupe. A Catholic organization, the Center for Applied Research in the Apostolate, in Washington, D.C., includes among its goals: "to seek to establish a scientific basis for devotion to Our Lady under the title of Guadalupe" (Henderson 1979b, p. iv). Another organization, one expressly concerned with the cloth, is the Image of Guadalupe Research Project, Inc., which is conducting a "scientific" study of the image. Perhaps not surprisingly, some of its members also serve on the Shroud of Turin Research Project, Inc., which has been promoting the authenticity of another "miraculous" cloth for the past few years. We have been following the activities of both projects, and this is the result of our investigation of the Guadalupan image to date.

## The Legend

As told in the sixteenth-century *Nican Mopohua* ("an account")—written in the native Aztec language and sometimes called the "gospel of Guadalupe" (Henderson 1979a, p. v)—the cloth's story began in early December of 1531, some ten years after Cortez had defeated the Aztec empire. At that time an Aztec peasant, a recent Christian convert named Juan Diego, supposedly left his own village to attend mass in another. As he passed the foot of a hill named Tepeyac, he heard birds singing, saw a bright light atop the hill, and heard a voice calling, "Juanito."

Climbing to the hill's summit, Juan Diego came upon a young girl, radiant in a golden mist, who identified herself as "the ever-virgin Holy Mary, Mother of the True God" and said, "I wish that a temple be created here quickly, so I may therein exhibit and give all my love, compassion, help, and protection, because I am your merciful mother. . . ." She instructed the peasant to hasten to "the palace of the Bishop of Mexico," Father Juan de Zumarraga and "say to him that I manifest my great desire, that here on this plain a temple be built to me. . . ."

The bishop was in his palace, attended by servants, and the poor peasant had first to plead for an audience and then suffer a long wait before finally being ushered into the holy man's presence. On bended knee, Juan Diego relayed his message to the skeptical prelate, who sent him away while he pondered the incredible tale.

When Juan Diego reported to the Virgin at Tepeyac, she told him to return to Father Zumarraga, who then asked Juan to bring him a "sign" so that he might believe. Unfortunately, Juan was delayed by an uncle's grave illness, and therefore, seeking a priest, he attempted to bypass Tepeyac "so he could not be seen by her who sees well everywhere" (as the pious account explains). However, telling him, "Let not your heart be disturbed," the Virgin assured the Indian she had just cured his uncle. And now, although it was not the season for them, Juan was to gather

flowers—which he discovered blooming miraculously—wrap them in his mantle, and carry them to the doubting priest.

Once again suffering a lengthy wait, Juan Diego was finally granted an audience before the prelate, whereupon "he then unfolded his white cloth, where he had the flowers; and when they had scattered on the floor, all the different varieties of *rosas de Castilla,* suddenly there appeared the drawing of the precious Image of the ever-virgin Holy Mary, Mother of God, in the manner as she is today kept in the temple of Tepeyac, which is named Guadalupe. When the bishop saw the image, he and all who were present fell to their knees." The bishop then placed the cloth in his private chapel "until the temple dedicated to the Queen of Tepeyacac was erected where Juan Diego had seen her " (Callero, in Smith 1983, pp. 121-135).

One of course recognizes in the legend a number of motifs from the Old and New Testaments, not only an apparition like the biblical "apparitions of superterrestrial beings" as Luis Medina Ascensio observes (1979, p. 1) but also the following: the holy personage, bathed in radiant light, upon a mountain (Matt. 17:2); a divine command for the building of a place of worship (Exod. 25:8); the sending of an emissary to persuade a doubter to carry out the divine instructions (Exod. 3:18-19); the childlike attempt to avoid the all-seeing deity (Jon. 1:3-4); a miraculous healing (Matt. 9:27-35; Luke 4:39); a miraculous blossoming (Num. 17:8; Isa. 35:1); and an apparition's ultimate convincing of a doubter with tangible "signs" (John 20:25-30). And when the Virgin tells Juan Diego to cease worrying about his sick uncle, she echoes Christ's words to his disciples in John 14:1.

In fact, some historians believe the Guadalupan legend was itself borrowed. The report of a formal investigation of the cloth in 1556 makes clear that the name Guadalupe had by that time been given to the Tepeyac site, and the very name arouses suspicion. Historian Jacques Lafaye (1976) calls attention to the similarity of the Mexican story to an earlier Spanish legend in which the Virgin appeared to a shepherd and led him to discover a statue of her. The Spanish site was even on a river known as Guadalupe (that is, "hidden channel"), strongly suggesting the Mexican tale was prompted by the Spanish one.

And the specific story of the Virgin's appearance to Juan Diego (as distinct from the image and the name Guadalupe, both probably dating from circa 1531) may stem from a later period than had once been supposed. A priest had estimated the original *Nican Mopohua* was written between 1540 and 1545 or at the latest 1548, the latter supposedly marking the death of Juan Diego, who, the priest argued, had supplied the writer of the account with the information (Burrus 1979, p. 3). But the writer, Antonio Valeriano, does not say so, nor is there any evidence that Juan Diego had any contact with him. Moreover, no mention was made of either Juan Diego or the legend in the entire 1556 report (Smith 1983, p.

21). Thus, the *Nican Mopohua* would appear to date from after that time. (Although it was once suggested that the earliest extant text of that "gospel" was written on cactus-fiber—and therefore native—paper, actually the pages' watermarks reveal them to be European [Burrus 1979, p. vi; 1981, p. 4].) Smith says "most scholars" now believe the original account was penned sometime between 1551 and 1561 (p. 121), and if we amend that to "after 1556" we shall perhaps be closer to the truth.

Then there is the tradition of the miraculous portrait. Smith (1983, pp. 18-19) equates the Guadalupan image with earlier pictures that were said to be "not made with hands" (*acheiropoietos* in the Greek). We agree the legend places the picture in this tradition but find this raises further doubts about its authenticity. That is because the tradition of "not made with hands" images is one of pious frauds: they range from the spurious sixth-century "self-portrait" of Christ known as the "Image of Edessa," to its later variant, "Veronica's Veil," to the best-known example, the infamous Shroud of Turin. (The latter's provenance can be documented no earlier than the middle of the fourteenth century, at which time a bishop reportedly uncovered the artist who confessed that the "shroud" was his handiwork. Recent tests show the image on the Turin cloth is composed of artists' pigments. [Nickell 1983, pp. 43 ff., 119 ff.].)

Even separated from the legend, the Virgin of Guadalupe is linked to another tradition of supposedly miraculous representations of Mary—that of the "dark-colored, ancient Greek Madonnas," which, says Jameson (1902, p. xxxiv), "had all along the credit of being miraculous." And Smith points out that the Mexicans have dubbed the Guadalupan image "La Morena"—that is, "the dark-complexioned woman"—because of the brownish flesh-tones (Smith 1983, p. 61).

Another obvious sign of legend-making is the fact that statements of specific religious dogma have been put in the mouth of the Virgin when—in the *Nican Mopohua*—she describes herself as "the ever-virgin Holy Mary." As Marcello Craveri explains in his *The Life of Jesus* (1967, pp. 27-28): "About the end of the fourth century, John Chrysostom proposed the definition of Mary's 'perpetual virginity': since her physical intactness had not been impaired by the birth of Jesus and she had maintained her virginity to the end of her life, she was to be called a virgin *ante partum, in partu, post partum.* This formula was to become dogma at the Lateran Council of 649 and was to be confirmed by the Tolentino Council of 675, because not everyone had freely accepted it." (Craveri goes on to tell how theologians who postulated Mary's "perpetual virginity" had had to rationalize "the embarrassing fact that the Gospels pointed clearly to brothers and sisters of Jesus," as in Mark 6:3, by transforming them into first "stepbrothers" and "stepsisters"—children of an invented earlier marriage of Joseph—and later to "cousins" of Jesus.)

Also present in the legend of the Lady's appearance to Juan Diego is

*hyperdulia*—the ecclesiastical term for the special veneration given to the Virgin Mary. As Craveri points out, it was after the Council of Ephesus (in 431) that a cult of the Virgin originated, and Mary eventually "assumed the functions of divinity" (1967, pp. 28-29). And so, in the legend of Juan Diego in the *Nican Mopohua,* it is the Virgin who appears to him, the Virgin who is all-seeing and able to work miraculous cures, the Virgin to whom the temple is to be built, and the Virgin whose image appears for veneration. Christ is scarcely mentioned.

To these disturbing elements in the tale—the familiar motifs; the suspiciously similar Spanish story and the transported name, Guadalupe; together with the scandalous, "not made with hands" portrait and the blatant elements of religious dogma—we must add still one further parallel that smacks of deliberate legend manufacture. As Smith states: "The shrine which held the Image of Guadalupe had been erected on a hill directly in front of the spot where there had been an important temple dedicated to the Aztec virgin goddess Tonantzin, 'Little Mother' of the Earth and Corn" (1983, p. 20). Thus—in what is difficult to ascribe to coincidence—the Christian tradition became grafted onto the Indian one (a process folklorists call "syncretism"). As evidence of the resulting confusion between the two, some of the Indians continued to use the name Tonantzin for the Virgin of Guadalupe (see "Virgen de Guadalupe" 1978, p. 7).

The result was that the "miracle" played a "major role" in hastening the conversion of the conquered Indians. Countless thousands came to view the image and "in just seven years, from 1532 to 1538, eight million Indians were converted to Christianity" (Smith 1983, pp. 10-11). That was certainly the desired goal, since it is well known that "the propagation of Christianity was one of the main purposes of Spanish imperialism, and church and state were closely connected" (see "Mexico" 1973, 331). And, since the chief organizer of the church in Mexico was Juan de Zumarraga, who became the country's first bishop in 1528, might he not have been the instigator of what now appears to have been a pious fraud, commissioning perhaps a local artist to create a suitable picture?

## The Image

Turning from folkloristics to iconography, again we find considerable borrowing. Even without knowing anything of the pious legend one would at first sight recognize the image as a portrait of the Virgin Mary. That recognition factor is not without considerable signficance, since—as St. Augustine lamented in the fifth century—it is impossible to know what the Virgin actually looked like. We recognize her in a given painting because the likeness has been established by artistic convention.

The Image of Guadalupe is obviously a devotional (as opposed to narrative) portrait, but we can more specifically characterize the picture in

terms of motifs and type. First of all, we note that the Virgin stands alone; as De Bles tells us (1925, p. 35), "Representations of the Madonna without the child were extremely rare" until the middle of the fifteenth century.

Next, one observes the golden rays and crescent moon—motifs taken from Revelation 12:1, which many believe refers to the Virgin: "And there appeared a great wonder in heaven; a woman clothed with the sun, and the moon under her feet, and upon her head a crown of twelve stars." Although the image has no crown, the evidence of repainting in the area suggests it once was present but was painted out (Callahan 1981, p. 20). Also, early copies of the image do show the Virgin with the crown motif from Revelation (Smith 1983, pp. 68-69).

Her radiance, her being "clothed with the sun" as Revelation says (or "her garments were shining like the sun," as it is given in the *Nican Mopohua*), is represented as a rayed glory, or aureole, a nimbus surrounding the entire figure; that is a stock artistic device, reserved for divinity and—by the Renaissance—conventionally rendered in gold (rather than the earlier white) (De Bles 1925, p. 35; Ferguson 1967, p. 89; Webber 1938, p. 161). The crescent moon is another traditional element, one especially indicative of the Virgin (since, as the moon reflects the sun, her glory is borrowed from her son, the Sun of Righteousness) (Webber 1938, p. 181; De Bles 1925, p. 41).

Other standard artistic motifs that appear in the Image of Guadalupe are the mantle's 46 stars, signifying the number of years required for building the temple of Jerusalem (Smith 1983, p. 69); gold fleur-de-lis designs that are symbolic of the Virgin Mother (Webber 1938, p. 71: De Bles 1925, p. 27); an angel at the Lady's feet (De Bles 1925, p. 40); a decorative tassel (Callahan 1981, p. 8); and others, including a possible Aztec motif: a distinctive lower fold of the robe (Callahan 1981, p. 12).

In fact, a Spanish painting, a Virgin of Mercy by Bonanat Zaortiza (now in the Museo de Arte de Cataluna in Barcelona), is said to be "of the exact form as the Virgin of Guadalupe" and even has "a similar brooch at the throat," according to Philip Serna Callahan (1981, p. 10), who terms it "strikingly imitative of the Virgin of Guadalupe," although it preceded the latter picture by nearly a century!

However, all of the motifs mentioned thus far are held to be later additions, at least by pro-authenticity writers. Callahan, who made a three-hour visual inspection of the image and took a series of infrared photographs, says: "Sometime after the original image was formed, the moon and the tassel were added by human hands. . . . Some time after the tassel and the moon were added, the gold and black line decorations, angel, Aztec fold of the robe, sunburst, stars and background were painted. . . ." Callahan adds, "The additions were by human hands and impart a Spanish Gothic motif to the painting" (1981, p. 18).

Callahan thinks some of the supposedly later work was added "proba-

bly during the 17th century" (1981, p. 18). However, we believe he is in error: A copy now lodged in Europe, dating from probably fewer than 40 years after the original image turned up, is actually "identical with the original" (except for the copy's "more skillfully done" gold rays and crown); it even has the identical number of stars on the Virgin's mantle (Smith 1983, pp. 12, 68-69).

Less difficult to disprove is Smith's guess that the supposedly added details—the gold rays, stars, and fleur-de-lis designs, and the moon and angel—were done "in the late sixteenth century" (1983, p. 70). However, the burden of proof is not ours but his and Callahan's, and neither is able to prove that all of the telltale artistic motifs were absent from the "original" image. Our argument is not with their claim that overlapping of paint demonstrates some parts were painted later than others (Callahan 1981, p. 9 ff.); rather, we simply remain unconvinced that much time has necessarily elapsed between the different applications. Paintings are invariable done in stages, and so what Smith and Callahan are assuming are years between stages could be merely days or even hours.

True, if some horizontal crease marks that have caused breaks in the figure have not also marred the background, as Callahan says they have not (1981, p. 8), then he draws a reasonable conclusion when he states, ". . . we must assume that the background was added after the rest of the painting was formed." It is a *reasonable* conclusion, but not the *only* one. Other possibilities are that the background paint was (at least at that time) more resilient and so resisted cracking, or that it was subsequently repaired.

In any case, even if some elements were indeed added later, that does little to prove the "original" portions are therefore "inexplicable" and even "miraculous," as Callahan terms the "original figure, including the rose robe, blue mantle, hands and face" (1981, pp. 18, 20). The fact that those areas are less thickly painted does not suggest they are *not* painted, let alone that they are *acheiropoietos*. Indeed, Callahan concedes the robe "may *appear* to be tempera" (though he finds it "truly inexplicable") and says of the blue mantle, "The pigment is too thickly laid on to be water color. . . ." (1981, p. 17). Its hue, he finds, is quite close to "Mayan" blue (1981, p. 9), suggesting it could be an indigenous pigment.

And as to the hands and face, again there is evidence of painting. Callahan's infrared photographs reveal the hands have been modified (outlined, and some fingers shortened) (1981, p. 13). He finds this another instance of someone changing the image at a later date, whereas we point out that such modifications are common to original paintings. (In fact, evidence of reworking is often used to distinguish an original—which might bear the changes of an artist creating a new work—from a copy, which need have no changes.) And Callahan can blithely speak of "the gray and 'caked' looking white pigment of the face and hands" (1981, p. 15). His closeup photograph of the face (p. 43) shows that this pigment is

applied so heavily in the highlight areas (exactly where an artist would be expected to heavily apply a light-toned pigment) that it obscures the texture of the cloth. Callahan even says (1981, p. 16): "Overall, the Virgin of Guadalupe appears to be a tempera painting."

In short, the very areas that Callahan and Smith cite as "original" and "miraculous" all have what "appears" to be pigment or paint. One of Callahan's major reasons for supposing the apparent paint is not paint (at least not paint of this world!), stems from his comparing the Guadalupan image with other Indian works done in paint on cloth. He states: "The preserved Indian Codices [or histories] are invariably in tattered condition. The colors are faded and cracked in most cases and the cloth torn and in extremely poor condition." He adds, "This is in considerable contrast to the bright coloring and excellent condition of the cloth tilma of the Virgin of Guadalupe. . . ." (1981, p. 16). But perhaps others can understand, if Callahan cannot, that Codices—which suffer considerable handling so that they can be read—might be in worse condition than a cloth that was carefully mounted and (as early as 1647) protected by glass, followed a few years later by a protective backing (Smith 1983, pp. 29, 31).

Actually, there is obvious cracking and flaking of the Guadalupan image all along a vertical seam that passes through the "original" areas of mantle, neck, and robe, as well as through the nonmiraculous background areas (see illustration). This line serves as an indicator that the entire portrait was rendered in a paintlike substance.

However, that "human hands" did not produce the image Callahan feels is strongly indicated by his infrared photography, which has supposedly failed to reveal any preparatory sketching or underdrawing (1981, p. 18). Even if, for the moment, we accept his claim that there is no underdrawing in the "original" areas, that claim must be tempered by the realization that his infrared technique *also failed to reveal any undersketching even in the areas proponents concede were painted by human hands,* namely, the angel, crescent moon, and background areas. (We might point out that, with an antique religious icon we have been examining, infrared photography failed to show sketch lines, although such lines were later revealed when we examined the icon with a model-J infrared microscope, manufactured by Research Devices, Inc. This microscope utilizes an S-1 photocathode image converter tube that extends from 400 nm to 1200 nm.) Besides, by the time the Guadalupan image appeared, some Renaissance artists had begun to work without preliminary sketching (Johnson 1980, p. 65).

In any case, there may indeed be evidence of underdrawing. Callahan concedes that infrared photographs of the robe's fold shadows reveal what "may, under cursory examination, appear to be thin sketch lines" (1981, pp. 10, 36). But he argues that, because they are actually "broad and also blended with the paint," they are "uncharacteristic of undersketching." He

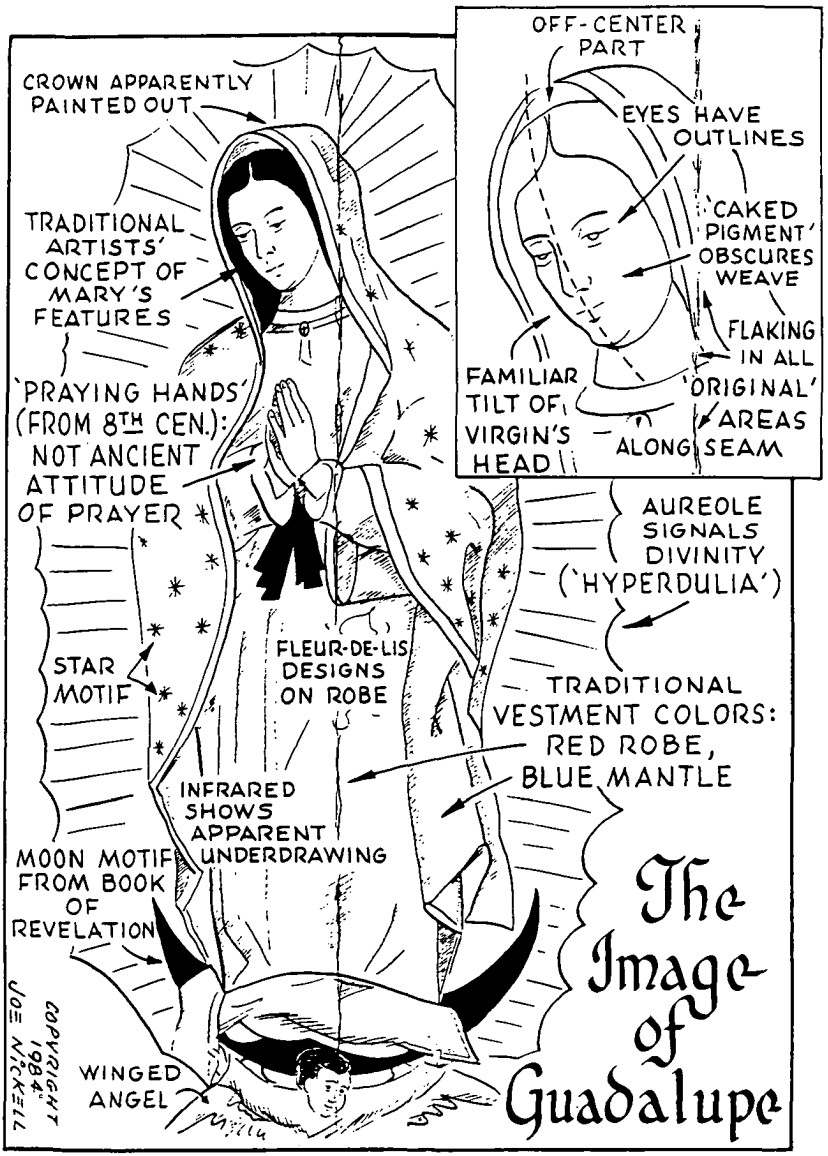
OFF-CENTER PART
EYES HAVE OUTLINES
'CAKED PIGMENT' OBSCURES WEAVE
FLAKING IN ALL 'ORIGINAL' AREAS ALONG SEAM
FAMILIAR TILT OF VIRGIN'S HEAD
CROWN APPARENTLY PAINTED OUT
TRADITIONAL ARTISTS' CONCEPT OF MARY'S FEATURES
'PRAYING HANDS' (FROM 8TH CEN.): NOT ANCIENT ATTITUDE OF PRAYER
AUREOLE SIGNALS DIVINITY ('HYPERDULIA')
STAR MOTIF
FLEUR-DE-LIS DESIGNS ON ROBE
TRADITIONAL VESTMENT COLORS: RED ROBE, BLUE MANTLE
INFRARED SHOWS APPARENT UNDERDRAWING
MOON MOTIF FROM BOOK OF REVELATION
WINGED ANGEL
COPYRIGHT 1984 JOE NICKELL
The Image of Guadalupe

Illustration prepared by Joe Nickell points to stock artistic motifs in the Image of Guadalupe and other evidence of its deliberate manufacture by painting.

fails to explain—as we think the onus is on him to do—what the anomalous lines *are* characteristic of. We find they do appear to be sketch lines, their breadth merely suggesting that the drawing was performed with a brush or was "fixed" with a brush; any "blending" could well be the result of the undersketching having been done in a soluble medium that was

partially dissolved and disturbed by subsequent overpainting.

Even if we accept Smith and Callahan's assertions that there is no underdrawing and that a number of obvious artistic motifs are later additions, there still remains damning evidence that the image is a painting. For one thing, the "original," supposedly miraculous areas still contain obvious artistic motifs and conventions: the formulaic *contrapposto* stance of the figure; the Virgin's familiarly tilted head and downcast gaze (as in Raphael's *Madonna del Granduca* and countless other paintings); and the traditional vestment colors of the Madonna, the robe or tunic of red and the mantle of blue. Earlier we mentioned the flesh tones as being in the "Dark Virgin" tradition. (See Janson 1963; De Bles 1925, p. 30; Hurll 1897, p. 112 ff.; Reni-Pallavicini 1975, pp. 4-25; Jameson 1902, p. li.)

Especially noteworthy is the position of the hands, pressed together in the familiar attitude of prayer. Smith and Callahan seem unaware that this gesture would have been foreign to the mother of Jesus, who would be expected to pray in the ancient manner. As this is represented in the earliest Christian art, the two arms are raised symmetrically in a gesture of supplication (Jameson 1902, pp. 4-5; De Bles 1925, p. 35). According to M. D. Anderson, "The posture with hands joined was unknown to pagan antiquity and early Christianity alike; it appears in the eighth century but did not become common until the twelfth century" (Child and Colles 1971, p. 219). In short, the motif seems merely a convention an artist of the sixteenth century would naturally have adopted and, with the other motifs and conventions, lessens the credibility of the "miraculous" appearance.

Evidence that the image is a mere painting dates from as early as 1556. In testimony given during the formal investigation of the cloth in that year, Father Alonzo de Santiago stated that the image was "painted yesteryear by an Indian." Another Franciscan priest, Juan de Maseques, supplied more specific information, testifying that the image "was a painting that the Indian painter Marcos had done." As Smith concedes, there was an Aztec painter active in Mexico at the time the image appeared. He was known as Marcos Cipac. Whether or not he was still living in 1556, when he was accused of painting the image, is uncertain. What is known is that Marcos did not attend the inquiry to deny the accusation (Smith 1983, pp. 20-21).

More recent evidence of painting comes from an examination of Callahan's visible-light and infrared photographs (Callahan 1981, pp. 30-44). We were assisted in this by Glenn Taylor, a professional artist with fifteen years' experience in an impressive variety of portraiture techniques. We asked him to concentrate on the supposedly "original" portions, and he made a number of observations: that the part in the Virgin of Guadalupe's hair is off center and suggestive of amateur artwork, that her eyes, including the irises, have outlines, as they often do in paintings but not in nature, and that these outlines appear to have been done with a brush; and

that the Virgin's traditional likeness, *contrapposto* stance, and other elements were indicative of European paintings of the Renaissance era. To him, "the detailing of the features exhibits the characteristic fluidity of painting." He describes the works as obviously "mannered" (in the artistic sense) and suggests it was probably copied by an inexpert copyist from an expertly done original.

One of the silliest examples of "scientific research" being conducted on the Guadalupan image—by "several ophthalmologists" and "a computer expert"—takes the *acheiropoietos* tradition from the macroscopic to the microscopic level. It concerns "what seems to be the reflected image of a man's head in the right eye of the Virgin" (as Smith describes it), which was once thought to be Juan Diego's own portrait in magical minature, until someone realized that Aztecs of the time were clean-shaven; thereupon it was reinterpreted as "a bearded Spaniard." Now, with the aid of photo-enhancement techniques (akin to those applied to the Turin "shroud" in hopes of identifying wished-for "Roman coins" over the eyes), still more tiny figures are being "discovered" and assigned to various sixteenth-century Mexican personages, such as Bishop Zumarraga. Meanwhile, the specific methodology is being questioned (Tierney 1983, p. 190). And at one point in his own discussion of the endeavor, Smith does wonder whether the proliferating wee people represent anything more "substantial than the human shapes we see in the clouds, the result of what Father Harold J. Rahn once termed a 'pious imagination' " (Smith 1983, pp. 79-83, 111 ff.). The whole protracted affair is reminiscent of those who saw the "face of Christ" on a New Mexico tortilla in 1978 (Murphy 1981, p. 44), and again in the wood grain of an Alabama hospital door in 1983 (Kay 1983, p. 18 ff.).

## Summary, Conclusions, and Recommendations

In summary, we believe our two-pronged investigation has presented overwhelming evidence against the claims of authenticity, casting doubt on the genuineness of both legend and image. In the former, we observe the familiar biblical motifs, realize that the larger story—complete with the name Guadalupe—was almost surely borrowed from a similar Spanish one; understand that the concept is in the infamous tradition of "not made with hands" portraits and other "miraculous" depictions of Mary; and recognize the elements of religious dogma, such as hyperdulia and "perpetual virginity." All of these, especially when taken together, suggest deliberate manufacture.

So does the image, which has—even in the supposedly "original" and "miraculous" areas—stock artistic motifs and apparent underdrawing; copious amounts of what "appear" to be pigments; and cracking and flaking, such as occurs with paint. The strong European elements—together

with the evidence of amateurishness in rendering them—support Glenn Taylor's suggestion that the image was largely copied from a more expert work or works. That the artist was an Indian is suggested by a supposed Aztec motif (the particular lower fold of the Virgin's robe), the apparent Aztec source of the blue pigment, and possibly even the complexion of the Virgin. (Although that can be equally explained by the "Dark Virgin" tradition, it would seem that that particular tradition might have been chosen because of its expected appeal to the Indian population.) Besides, we even have the testimony of two contemporary priests that the image was done by a native artist, and of one of them that it was painted by "the Indian painter Marcos."

In conclusion, the church's desire to convert the Aztecs would seem to have been the *motive*, and the fact that the Indians had a similar Virgin goddess provided the *opportunity*. The *means* was the "miracle" (badly taken from the Spanish Guadalupan legend), and—to complete our case—the image is the smoking gun. We say that because there is nowhere convincing evidence of its supposedly miraculous nature, but everywere signs of human artistry and fraud.

Nevertheless, should Guadalupan researchers desire to apply true science to the question of authenticity, we have some positive suggestions. In fact, one of us (J.F.) has previously recommended that direct sampling of the image—especially of the supposedly "miraculous" portion—should be undertaken (Nickell 1984). This can be accomplished by careful sampling of minute amounts of coloring matter, so minute as to be indetectible to the unaided eye. Then, in addition to such standard techniques as polarized-light microscopy, scanning electron microprobe analysis, and various microchemical tests, we would suggest the application of Fourier transform infrared technology (FTIR), which is proving a valuable research technique (Shearer et al. 1983, pp. 874A-880A). We are aware that spectrophotometry has reportedly been done (Smith 1983, p. 107), but the results are apparently still not available. However, attempts to identify any pigments (or mixtures of pigments) and any binding media, etc., *in situ*—that is, without actual removal of samples—we believe would be so potentially error-prone as to further exacerbate the controversy rather than resolve it. Furthermore, we strongly recommend that further testing be conducted by impartial, independent laboratories rather than by the present examiners.

## Acknowledgments

The authors wish to thank Michael Schneider of Research Devices, Inc. (Berkeley Heights, N.J.) for his technical assistance; D. Scott Rogo (Northridge, Calif.) for providing essential source material; Lina Crocker (University of Kentucky) for help in translating from the Spanish; Glenn Taylor (Lexington, Ky.) for his professional opinions; and Ella Nickell (West Liberty, Ky.) for manuscript assistance.

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# Radar UFOs: Where Have They Gone?

## *The answer lies in improved radar and computer technology*

Philip J. Klass

UFOLOGY IS in the doldrums, as even its most ardent promoters admit. The reasons are many. One contributing factor is that reports of UFOs being spotted on radar, which occurred frequently during the 1950s and early 1960s, have almost completely disappeared. Such reports offer impressive evidence to the layman of alien craft in our skies, even if not to those who design radars and know of their vulnerability to spurious echoes.

If the UFO proponents were motivated by scientific curiosity, they would be searching for an answer to the disappearance of radar-UFOs. But even if they were so motivated, their conviction that the U.S. government is engaged in a massive "UFO coverup" could prompt them to conclude that UFOs are still showing up on our radars but that this is being kept secret.

Possibly a few UFOlogists might leap to the conclusion that the UFO builders in some distant, advanced civilization finally have discovered the "stealth techniques" that the United States plans to use in our next-generation military aircraft, to reduce their detectability to enemy radars. In reality, the reason for the sharp dropoff in radar-UFO reports *is* advanced technology—not "theirs" but ours!

Ever since its invention during World War II, radar has been plagued by spurious echoes, often caused by a temperature-inversion in the lower atmosphere that causes some of the energy from a ground-based air-surveillance radar to be "bent" downward so that it reflects off objects on the surface. As atmospheric conditions change, an anomalous "blip" can disappear from one area on the radar display and another unrelated blip may soon appear in another. An inexperienced operator can easily conclude that the object causing the blip has moved, say, 100 miles in 30 seconds, corresponding to a speed of 12,000 mph—clearly beyond the ability of any known terrestrial craft, i.e., a UFO.

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*Philip J. Klass is senior avionics editor of* Aviation Week & Space Technology *and chairman of the CSICOP UFO Subcommittee.*

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Flocks of birds in flight reflect enough radar energy to show up as a well-defined target and, as radars became more powerful in the 1960s, even a single sea gull could generate a spurious target on air-defense radars.

In response to the Soviet acquisition of nuclear weapons and a large fleet of long-range bombers, in the 1950s the United States sought to erect an effective air defense. During World War II, information on enemy aircraft detected on radar was telephoned to a central air-defense facility where the location and track of each target was plotted by human operators on large plastic boards using grease-pencil. But this method was much too slow to cope with jet-powered bombers armed with devastating nuclear weapons. The newly invented digital computer seemed ideal to take over the task of tracking enemy aircraft, predicting their future positions, and directing our own interceptors. The radar data giving each target's bearing, range, and altitude could be transmitted rapidly and directly to the computer for processing.

The computers selected for this vital air-defense mission, built by IBM, were monstrous in size, for they used vacuum tubes instead of today's microcircuits. But despite their size, the computer memory/storage technology of the 1950s was so primitive that each computer could only keep tabs on a few hundred targets simultaneously. This was adequate for the projected size of the Soviet bomber fleet if each radar target fed into the computer was a legitimate one. But if there were many spurious targets, generated by atmospheric conditions or birds, the computer memory would become saturated, leaving no capacity to handle legitimate threats.

Another problem was how to transmit data from the far-flung radar sites to one of the air-defense computers that typically was hundreds of miles away. To avoid having to use costly microwave relay stations, it was decided that each radar would only transmit information on legitimate targets (their bearing, range, and altitude), which could be done using relatively low-cost telephone lines. Other data, such as echoes from thunderstorms and birds and spurious echoes caused by anomalous propagation conditions, would be filtered out at the radar site.

This decision, born of economic and operational necessity, together with the technology developed to implement it, would ultimately spell the demise of the radar-UFO.

UFO proponents claim that an experienced radar operator would never be fooled by a spurious target, sometimes called an "angel." Certainly an experienced operator is less susceptible than an inexperienced one. But radar and computer designers discovered that the problem of discriminating between real and spurious targets sometimes can be very difficult. This is evidenced by the fact that it has taken more than a decade to develop computers and software smart enough to make such decisions.

Ironically, one of the several criteria used to discriminate between real

and spurious targets would filter out potential radar-UFOs even if they were legitimate extraterrestrial craft flying at hypersonic speeds, as will be explained.

Both military and civil air-surveillance radars have rotating antennas that get a brief look at a target only once during each revolution. This varies from once every 4 seconds for short-range airport radars to once every 12 to 15 seconds for long-range radars. The computer that tracks these radar targets is programmed to calculate the speed of each by measuring the difference in position of the target on successive scans. For example, consider a radar whose antenna rotates through 360 degrees once every 15 seconds. If the target's position changes by 2 miles between successive scans, the computer calculates that the craft is moving at 480 mph.

Because the fastest U.S. military aircraft have a top speed of around 2,000 mph, a computer program intended to filter out spurious targets may be set so that any object that appears to be moving erratically and at more than 3,000 mph (allowing a 1,000 mph cushion), based on successive scans of the antenna, is presumed to be the result of anomalous propagation conditions. (If the time should come when U.S. military aircraft, and possibly Soviet aircraft, fly at 3,000 mph, obviously the computer program would need to be updated.)

Similarly, at the opposite end of the speed scale, the computer may be programmed to discard any airborne target that seems to be flying at less than, say, 40 mph to prevent echoes of birds from saturating the system.

With the advent of low-cost microcomputers, radar designers have been able to introduce a number of additional, more sophisticated filtering techniques to further reduce the prospect of obtaining spurious echoes. These improvements are coming into use on new-generation civil and military radars.

Still another blow to the radar-UFO came in the early 1970s, when the Federal Aviation Administration introduced two innovations. One was the use of computers to monitor and track aircraft for air-traffic-control purposes. The other was the use of a radar transponder, required for all airliners, all military aircraft, and many privately owned aircraft.

When a transponder-equipped aircraft is illuminated by a ground radar, the transponder sends back a brief coded message that gives the aircraft's barometric altitude and an identity code that the computer can translate into, for instance, TWA #800. Such signals make it far easier for a computer to track each aircraft than is possible using a weak reflected signal, which can be seriously attenuated if the aircraft is flying through clouds.

These innovations, introduced in the early 1970s, made it possible to provide traffic controllers with displays that not only show the bearing and distance to each transponder-equipped aircraft, but also its altitude,

its identity, and even its speed.

For those smaller general-aviation aircraft not equipped with transponders, the radar echo is used, but it is analyzed. Spurious echoes are filtered out at long-range radars so that spurious targets are never displayed for controllers at the FAA's enroute-traffic-control centers.

The shorter-range radars at airports until recently have displayed both the "raw radar" data and the decoded transponder information, but the equipment at more than 60 major airports is being upgraded so that controllers will have displayed only those radar echoes that the computer is quite confident are aircraft.

As new-generation radars, with improved capabilities for filtering out spurious targets, are installed at the nation's major and middle-size airports, some of the older-generation radars replaced are installed at small airports with low traffic density.

These older radars, without modern spurious-target filtering capability, did produce a few radar-UFO reports, especially before controllers at the smaller airports learned of their idiosyncrasies. But today even these old hand-me-down radars are providing few radar-UFO reports, thanks to their more experienced operators.

As a result of much improved radar and computer technology the nation's air-traffic-control system operates more efficiently and with greater safety. But it would not be surprising, after publication of this article, if some UFO-promoters should charge that the U.S. government has installed this new equipment, at great taxpayer expense, simply to filter out "legitimate UFOs" as part of a massive coverup. •

# Phrenology and Popular Gullibility

## *The 'science' of determining character from head shape, built on the flimsiest of evidence, once had a wide following.*

Robert W. McCoy

*I look upon phrenology as the guide to philosophy and hand maid of Christianity. Whoever disseminates true phrenology is a public benefactor.*—Thomas Mann

PHRENOLOGY IS THE study of the shape of the head to determine character. The appealing thought that it could provide an accurate shortcut to "knowing thyself" created a sensation at the turn of the century. However, it has been one of the less durable of the pseudosciences and is fortunately in almost total eclipse, along with its ally physiognomy, the art of telling character by the shape of the face.

Thomas Mann, among many others in the nineteenth century, found in phrenology a possible key to understanding behavior. It was first detailed as a science by Dr. Franz Joseph Gall, a Viennese physician, whose principal expositions were oral but whose first published paper appeared in 1978. Gall's point of view was considered dangerous to religion, and in 1802 the Austrian government, because of pressure from the church, ordered him to cease his public lectures. As often happens, this prohibition stimulated considerable interest in his ideas, and many writers, some of whom had never even heard Gall and represented his views with varying exactness, rushed into print with pamphlets on his new science of "cranioscopy," as it was first called.

Unable to continue lecturing, Gall teamed up with Dr. J. K. Spurzheim, who had become his pupil in 1800 and was a powerful ally in promulgating this new system. They traveled throughout Europe, drawing large audiences wherever they went, and finally settled in Paris in 1807. Dr. T. I. Foster is generally credited with giving the name "phrenology" to the system of psychology developed by Gall and his followers.

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*Robert W. McCoy is a former president of the American Humanist Association. He lives in Minnesota.*

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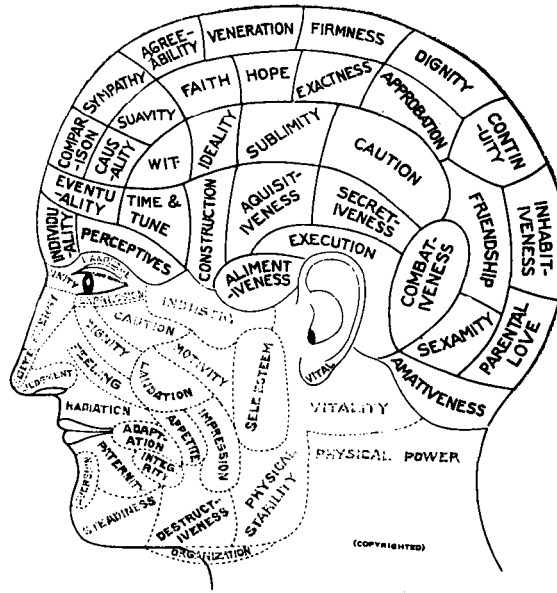
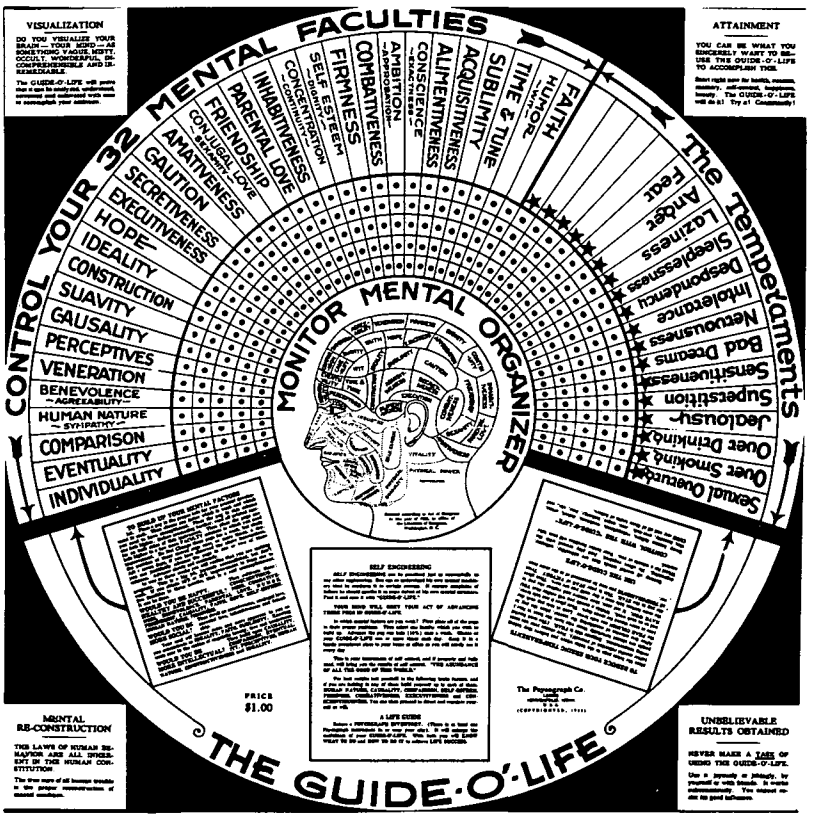



Phrenology chart published by the Psycograph Company.

Gall was a sensation in Paris, which he considered the center of intellectual development in Europe. As a physican who had developed a science useful in describing character and helpful in foretelling future areas of accomplishment, his company at dinner parties was so sought after that one had to sign up months in advance to be near this interesting man.

As hungry as the Parisians were for knowledge of this new science, few apparently asked the key question: How does he know which parts of the head are responsible for what traits? Gall believed the brain had 26 organs, as identifiable as the pancreas and the liver, that were apparent on the scalp as rounded enclosures with vacant interspaces. Spurzheim and another follower, Combe, divided the whole scalp into 35 oblong and conterminous patches by expanding on some of Gall's designations. Gall's basic classifications were established by his observations of various friends, patients, and acquaintances who demonstrated certain traits and also exhibited protuberances on the head that he believed were responsible for that particular faculty.

For example, the area designated as "combativeness" was determined by Gall after examining the heads of the most quarrelsome of his low companions, whom he had beforehand stimulated with alcohol. It was verified by comparing this region with the same part of the head of a quarrelsome young lady he knew!




The Guide-o'-Life promised to help you call particular traits at will.

The faculty for "acquisitiveness" was located just behind the temple because two pickpockets of his acquaintance had prominent "bumps" there. He identified an area designated "approbation" because he saw a protuberance on the head of a lunatic who fancied herself the Queen of France.

"Destructiveness," located above the ear at the widest point of the skull, was found to be large in both the head of a student so fond of torturing animals that he became a surgeon and the head of an apothecary who became an executioner!

Phrenology thus was a "science" built completely upon flimsy evidence and a few personal observations by a curious physician in the late 1700s. This catalogue of observations occupied center stage for what passed as a branch of psychology for about 140 years. Bibliographies list over 55 major books on the subject published in Europe from 1803 to 1857. The

*Phrenological Journal* appeared continuously from 1838 to 1910. The Fowler and Wells Co. of New York City published hundreds of books and pamphlets during the 1800s that popularized this fad in America. Those who frequent used-book stores can still find many of them. Almost all of these publications introduce the reader to phrenology by showing the Gall/Spurzheim head-map as a given, without mentioning, for example, that Spurzheim added to Gall's classification the talent for "perceptiveness," which he discovered while examining the head of a neat and orderly "idiot" in 1810.

Determining the size of the "organ" and the boundaries of the regions by feeling the head with the fingers was both arbitrary and indefinite. To overcome this problem, in 1923 M. Tope, a professional examiner at the Bowerston (Ohio) Phrenological Institution, offered readings by mail for those who sent him a photo and five dollars. Several attempts were made in the 1800s to devise mechanical and more accurate modes of measurement, but none was successful.

In 1901, Henry C. Lavery, a self-described "profound thinker" of Superior, Wisconsin, became certain that phrenology was true and spent his next 26 years endeavoring to put this science into a machine. On January 29, 1931, he and his partner, Frank P. White, a businessman who had taken his life savings of $28,000 out of stock in a local sandpaper manufacturer—the 3M company—to finance the venture, announced the invention of such a machine—the "Psycograph."

The machine consisted of 1,954 parts in a metal carrier with a continuous motor-driven belt inside a walnut cabinet containing statements about 32 mental faculties. These faculties were each rated 1 through 5, "deficient" to "very superior," so that there were 160 possible statements but an almost unlimited number of combinations. The "score" was determined by the way the 32 probes, each with five contact points in the headpiece, made contact with the head. The subject sat in a chair connected to the machine and the headpiece was lowered and adjusted. The operator then pulled back a lever that activated the belt-driven motor, which then received low-voltage signals from the headpiece and stamped out the appropriate statement for each faculty consecutively.

A typical reading would contain a brief two-line description with a slightly moralistic overtone, such as:

> 4 AMATIVENESS—Superior. You are capable of a passionate love for the opposite sex and should seek the company of healthy minded members.
>
> 2 SUAVITY—Low Average. You do not make enough effort toward expressing consideration for others. Develop by studying how to please others. Exercise tact.

## *The Power of Science Brings a New Gift to Man—*

# THE PSYCOGRAPH

**The PSYCOGRAPH is a mechanical character analyst, capable of making several million distinct calculations based on individual peculiarities in the shape of the human head. It is more accurate than any human phrenologist could possibly be. An individual reading requires only a few seconds.**

## THIRTY-TWO FACULTIES ANALYZED

**The subject places his head within the delicate mechanism pictured above. Thirty-two sensitive measuring devices, one for each of the thirty-two mental faculties, touch the subject's head lightly at various points and almost immediately a printed analysis is produced. Millions of different readings are possible with the PSYCOGRAPH. It is almost impossible for two people to have the same reading. Yet the same subject may have any number of readings and will each time receive the same analysis.**

***The PSYCOGRAPH will be demonstrated at this theatre by an expert operator, and every adult patron will receive a character reading absolutely free.***

BE SURE TO ATTEND AND RECEIVE THE PERSONAL MESSAGE WHICH THE PSYCOGRAPH HAS FOR YOU.

Mechanical character analyst claimed to be more accurate in making headshape character readings "than any human phrenologist could possibly be."

3 SEXAMITY—Average. Physical contact is not essential in the expression of this urge for companionship with the opposite sex. Yet you may love devotedly.

Thirty-three machines were built, and a local office in Minneapolis flourished. The machines were leased to entrepreneurs throughout the country for $2,000 down plus $35 a month. They were popular attractions for theater lobbies and department stores, which found them good traffic builders during the depression. Two enterprising promoters set up shop in the Black Forest Village at the 1934 Century of Progress Exposition in Chicago and netted $200,000 at their standing-room-only booth!

Phrenology in Europe had been abandoned as nonsense long before this time. The brief success of the Psycograph lasted until the mid-thirties, when the company closed because of increasing skepticism and declining income. The machines were returned and packed away in storage until the mid-sixties, when John White, the founder's son, and I put several back

# *Physiognomist Discerns Personality Through Study Of Physical Traits*

VANCOUVER (CP) — What makes the first impression a lasting one?

Josef Princiotta believes it is a person's physical characteristics — those narrow lips, high cheekbones or prominent chin — that are instant clues to the personality. The key is knowing how to interpret those signals.

"Differences in feature distribution are the key to the understanding of one's personality," he said in a recent interview.

"We all have the same elements in our personalities. But the distribution is different."

And so it is with physical attributes. It is the subtle differences in these characteristics that shape not only our physical, but emotional selves, he said.

Princiotta is an expert in physiognomy — the technique of discerning character and temperament by studying a person's physical attributes.

For instance, short fingers are an indication of insensitivity. A man wearing a ring on thumb is no doubt self-centred, and his small earlobes signal a dishonest nature.

Princiotta, 43, developed a penchant for watching people as a youngster. He quickly perceived persons with certain physical characteristics tended to behave a certain way.

His interest in people was later fuelled on a trip to Japan, where he learned about Zen and the concepts of Yin and Yang. The opposing forces of nature are well illustrated in the human face, he says.

**Two Sides**

The right side reveals a person's public image, while the left shows the real, or often hidden, personality. He compares the head to a landscape painting, with the crown and forehead indicators of one's thoughts, fears and dreams. The chin is an indicator of one's basic approach to failure, success and everyday life.

Princiotta was in Vancouver recently to conduct a physiognomy seminar. An electrical engineer by education, he divides his home between Anchorage, Alaska, and Las Vegas, Nev. His work is divided between physiognomy lectures, instructing poker players to golfers on body language, and aiding lawyers in jury selection.

**READS FEATURES** — Josef Princiotta, an expert in physiognomy, says much can be read about a person's character by surveying their physical features. Princiotta has used his skill to assist defence lawyers in selecting jury members. (CP Laserphoto)

While in Vancouver he also made the rounds of media talk shows and interviews and found the interviewers more interesting than the interview.

"He wants to know about you right away," he said of BCTV newsman Jack Webster, whose prominent, square forehead indicates an intellectual with a thirst for knowledge of others.

"In the middle of the forehead there is a patch of hair that stayed there. This reveals sensitivity. On that forehead it means he is protecting his own ideas by reaching out to yours."

**Chin Trouble**

The worldwide appeal of singers Barbra Streisand and Mick Jagger is featured in their upper lips — more square than peaked — and in generous mouths that reveal their songs are offered to a wide variety of people.

Joe Clark's receding chin indicates the "inability to grab a position."

"Trudeau has telephoto eyes," said Princiotta, saying the prime minister's closely set eyes limit his peripheral vision. This physical attribute also telegraphs his approach to policy and to life.

"He sees far but does not see his immediate surroundings as well. He is an intellectual but out of touch at the physical level. Trudeau also talks out of the right side of the mouth, which indicates an intellectual salesman."

About 12 times a year he is called to help defence lawyers select juries that they hope will be favorable toward their clients. Princiotta employs body language and physiognomy, and sometimes handwriting analysis, in choosing

Physiognomy has not totally disappeared. This article appeared in Canadian newspapers Jan. 4, 1984.

The author and his son Bruce with restored Psycograph machine.

into working order. Our interest was based on curiosity, but we were astonished to discover how gullible people are when confronted by a machine.

Readings were given at fund-raisers for various causes and for entertainment at health fairs. After a reading from the machine, administered by a person in a lab coat, and with a personal printout and an impressive chart in hand, it took some hard negative selling to convince a person that phrenology was not a true science. After an appearance on the "Tonight" show with the machine in 1968, we received mail and calls from all over the country from people who wanted readings. A farmer in Baldwin, Missouri, wanted a machine shipped to him so he could find out what was wrong with his wife.

In 1969, after the *San Francisco Examiner* ran an article about the machine with a picture, a reader wrote that he had had his four children evaluated by a Psycograph at the Panama Fair in the 1930s. He reported that a son who went to Annapolis had a "mental crackup." "With the knowledge I had from the Psycograph reading I took the stand that his mental break was man-made and could be man-cured, so after years of treatment he went on to become a successful civil engineer, thanks to phrenology." The correspondent himself reported that a traveling Italian phrenologist, employed by the state school system in Tasmania, gave him a manual reading in 1905. Buoyed by his favorable reading he went on to

form the first apple co-op in Tasmania. This man, then in his eighties, flew to Minneapolis for an update on his 1905 reading, the printout of which he still had. Needless to say there were many differences in the two readings.

Recently at a health fair conducted by a local hospital the impressive equipment was set up in a tent between the kidney dialysis and the audiology department booths. A senior citizen remarked that he didn't know the hospital had a phrenology machine. He was given the standard reading and charts and the proper warning about phrenology being apocryphal. There was concern that his mental health may have been set back—until a smile appeared on his face when he saw his "very superior" rating in sexuality.

Some of phrenology's effects have been positive. Both Clara Barton and Thomas Edison credited Fowler with discovering their true talents and urging them to pursue new fields, and caretakers of mental patients stopped "beating the devil" out of them when it was believed that their disorders were caused by misshapen heads rather than evil spirits.

As skeptics using phrenology as an example, we learned that a so-called science can be developed and accepted by millions on the flimsiest evidence. Even today, with the proper mumbo-jumbo and some impressive props, supposedly sophisticated people can be led to believe outrageous claims. •

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## Questioning nature

*Science is an* activity. *It's an approach to questioning nature, by which you structure your questions so that (you hope) nature answers them unambiguously.*

—Geophysicist J. Tuzo Wilson,
in *Science Dimension,* vol. 16, no. 5, 1984

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# Deception by Patients in the Medical Setting

*Some patients can be remarkably innovative in carrying out bizarre frauds, some reminiscent of paranormal flimflam.*

Loren Pankratz

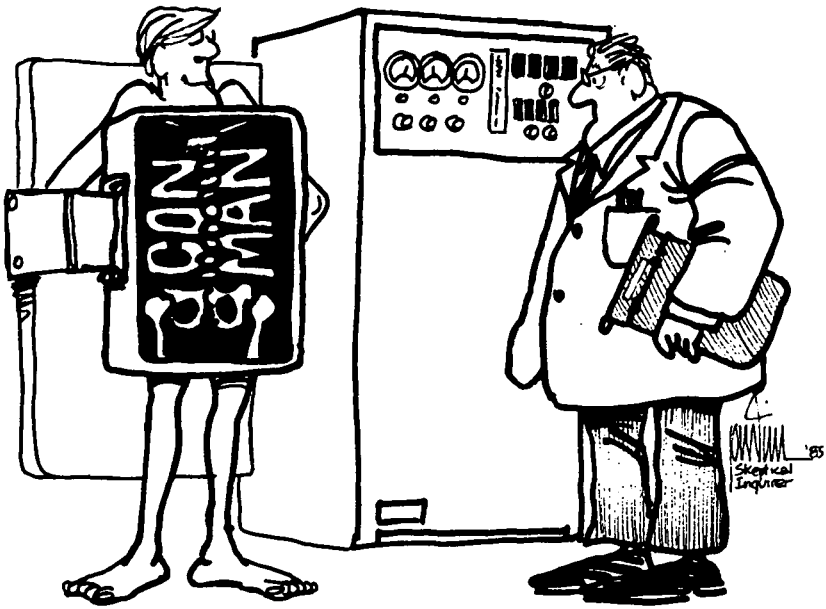
MUCH HAS BEEN written about the abuse of power in the medical profession. Little is known, however, about the variety of ways that patients deceive physicians. Over the past decade I have attended to the possibility of deception in the stories and symptoms of patients. Interestingly, many of these deceptions cannot be easily interpreted as having any advantage to the patient. The purpose of this report is to acquaint the general reader with these bizarre frauds and to speculate about some of their possible causes.

### Transient Patients

I first became interested in patient deception when I noticed the treatment failures among patients in our small psychiatric ward who arrived from outside the catchment area. I designed a prospective study to identify these patients, who should have been in a hospital near their home rather than in ours. Two of these patients were eventually considered successfully treated. They were distinguished by having no previous psychiatric hospitalizations.

We were startled by what we found in the remainder of these transient patients. All were wandering from hospital to hospital. Their lives were filled with deception, including the very timing of their arrival for admission. They appeared in the admitting room at night or on weekends, when less experienced staff were on duty. They were thus more likely to obtain entry, since fewer options were available at those times.

*Loren Pankratz is a clinical psychologist at the Veterans Administration Medical Center and an associate professor in the departments of Psychiatry and Medical Psychology, Oregon Health Sciences University, Portland, Oregon.*




These deceptive transient patients generally sought admission by presenting threats of suicide or violence. They cleverly hid the larger context of their problems by focusing the attention of the admitting officer on their immediate agitated state. All had chronic problems or a history of drug or alcohol abuse, which was evident only in retrospect. The multiple hospitalizations had no apparent positive effect on them, and our best efforts were no exception.

These patients adapted to the ward in a variety of ways. Some immediately became less agitated and enacted a charming or helpful role. Others continued to appear severely inadequate or extremely disturbed. Some of the patients we were unable to help might have been victims of some of the unsolved mysteries of psychiatric disorders, but there was evidence to suggest that they might have been suffering from a psychiatric version of the Munchausen syndrome.

## The Munchausen Syndrome

Munchausen syndrome patients are medical frauds, although their symptoms and diseases may well be dangerous (Pankratz 1981). They distort the cause and history of their illness, which may be self-inflicted, completely feigned, or an illness kept active through improper care. The goal is apparently to assume the role of a patient. They are characterized by multiple surgeries, a history of drifting from place to place, and the telling

of extraordinary lies, frequently of a grandiose nature.

Some of these patients have become remarkable sleight-of-hand artists with a thermometer. Many have medical training and have found unique ways of assuring that their laboratory tests show abnormalities. We now even have electronic Munchausen patients, who can manipulate complex medical monitoring devices. One is reminded of the tricks that James Randi (1982) created in the Department of Biophysics at Kings College in London. However, Randi's deceptions were designed to explode the myth of Gellerism; the purpose of the Munchausen patient is difficult to appreciate and the outcome is frequently chilling. One 24-year-old woman surreptitiously altered the results of her Holter monitor to create a bradycardia. A result of her deception was the implantation of a permanent transvenous atrioventricular pacemaker (Mitchell and Frank 1982). Apparently as a result of many years of unnecessarily repeated diagnostic X-rays, some patients have developed leukemia. Other patients keep themselves sick by self-injecting saliva or other foreign material. One patient, whose progress I follow, can simulate a crisis in an attempt to obtain emergency surgery on a kidney that has previously been removed.

## Patients Who Deny Symptoms

A series of studies at Massachusetts General Hospital illustrated that the problem of denying symptoms can be as serious as that of creating them (Hackett and Weisman 1977). Thirty-two randomly selected cardiac patients were interviewed about the pain they experienced prior to hospital admission. Many had alarming gaps in memory and distortions of significant past events. They gave incorrect histories and distorted their symptoms. Furthermore, those who correctly diagnosed their condition delayed in obtaining medical help about twice as long as others. Patients interviewed in coronary intensive-care units frequently thought that too much attention was being paid to their heart condition even though they were at serious risk of death. In spite of overwhelming evidence, some patients deny the meaning of their symptoms even though the consequences of their self-deception are disastrous.

## Etiology

Why do patients engage in deceptions that bring them harm? Some patients seek the role of a seriously ill, tragic victim as a way of avoiding responsibility (Sparr and Pankratz 1983). But the cost involved in most of the cases I have described seems so great that any sense of "payoff" is meaningless. Nevertheless, at some level these sorties into the medical domain may contain a sense of adventure or challenge. One patient I have interviewed extensively has probably had over four hundred hospitalizations. At dif-

ferent times he presented himself at an emergency room as a Strategic Air Command pilot, a NATO research scientist, an oceanographer with Jacques Cousteau, a fighter pilot POW once shot down over North Korea, a nuclear physicist, and a Boeing executive looking for a new building site in the area. He is easily believable because his appearance and sincerity are so polished. He astutely pointed out that everyone wants to be associated with someone important. He noted that many times when his story was exposed people refused to believe that he had lied. One is reminded of the power that certain psychics and mystics wield over believers.

Analysts have been particularly attracted to psychodynamic explanations. They point out that many of these patients had early experiences of parental loss, sadism, or rejection, as well as exposure to chronic illness and institutionalization. Clearly these early social situations are ideal for learning deviant methods of gaining power, avoiding responsibility, and maintaining a dependent role. Many are nurses or in paramedical occupations, suggesting ambivalence with the care-giving and care-receiving roles.

Diagnostically, these patients frequently meet the criteria for a passive-dependent, histrionic, paranoid, or borderline personality disorder. However, the personality disorder label is technically not considered a psychiatric disorder; it merely describes a style of life that began early in the person's psychosocial development. Rarely are these patients schizophrenic.

Other clinicians, with a less charitable view and eschewing diagnostic labels, have suggested that these patients are merely deadbeats, hospital hobos, or professional bums. They point to the demanding, manipulating behavior, reminding us that many of these patients are drug addicts. Nevertheless, it is not clear whether the initial addiction was to hospitals or to drugs. Most addicts do not volunteer for surgery or invasive testing.

Another consideration is central nervous system dysfunction. Patients with grandiosity, confabulations, or a confusion in their presentation should be evaluated for brain dysfunction, especially of the right hemisphere. Right-hemisphere damage is particularly noted for fragmented awareness, creating defects in thought organization, and illogicality without seriously impaired verbal reasoning. I have found dramatic neuropsychological impairment in patients who superficially appear intact because their verbal skills seem intact.

One 33-year-old female, for example, created a complete medical record on herself *and* presented it as if coming from the Sloan-Kettering Institute. She manufactured laboratory results, chart notes, and a discharge summary complete with the diagnosis of myelocytic leukemia. Nevertheless, she was severely impaired in her ability to solve problems that required visual (nonverbal) reasoning. A computerized tomography (CT) scan of her brain revealed a likely residual of prior injury with secondary brain atrophy.

One clever 29-year-old Munchausen patient entered our hospital and stole laboratory and X-ray forms so that he could order his own tests. He would then present the results to the admitting physician, insisting on treatment for a specific diagnosis. He was facile with medical terminology, and he seemed very bright. When I tested this patient, however, he could not copy simple geometric designs, although his verbal skills were intact. Whenever I hear outrageous medical complaints, I feel obliged to evaluate brain functions first.

Another possible source of miscommunication or apparent deception between doctor and patient has recently been suggested from research on highly hypnotizable subjects (Wilson and Barber 1982). These findings also have implications for investigation of telepathic, precognitive, out-of-body, and other psychic paranormal claims. A group of women rated as excellent hypnotic subjects all revealed that they had a profound fantasy life. As this was explored, they often described their fantasies "as real as real." At times they became so involved that they pretended to be someone else when talking to strangers, even believing their stories were true. Because they were sensitive to social norms, they had told virtually no one about the depth of their fantasy life, not even spouses or therapists.

These subjects, identified as having a "fantasy-prone personality," represented a full spectrum of personality styles, educational attainment, and personal adjustment. Many of these women worked in hospitals and believed that they could heal by the laying-on-of-hands, and some believed that at night they left their bodies and walked among the sick to give encouragement. All the possibilities for medical misunderstanding have not been explored with this group. However, 13 of the 22 subjects reported experiencing a false pregnancy (pseudocyesis) at least once, including symptoms of abdominal enlargement and "fetal" movement. Their reported experiences may provide important psychological understanding of reported paranormal experiences.

## Conclusions

No medical presentation should be considered too sincere to contain deception and no injury too repugnant to be considered self-inflicted. Martin Gardner (1981) noted: "Most people assume that if a man has a brilliant mind he is qualified to detect fraud. This is untrue." Gardner was warning physicists who had been flimflammed by psychic spoon-benders and the like, but we might easily include health-care clinicians. However, it should not be necessary to bring magicians into the examination room. There are obviously many different causes of these self-destructive and deceptive acts, just as there are many causes of alcoholism. Rather than being cynical or afraid of being fooled, the clinician can protect himself by understanding each symptom in the context of its biopsychosocial history.

Thick charts, multiple hospitalizations, absent social systems, and other clues should suggest caution to the clinician. What may be found, of course, are ordinary people struggling with social isolation, depression secondary to chronic illness, or difficulty with compliance. The patient who is struggling with illness and the patient pretending illness both need help. The first task is to identify the problem properly.

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# Patterns of Communication in Nature

*Animals communicate and gather information in diverse ways. Knowing nature better will help us distinguish between the natural and the supernatural.*

Aydin Örstan

MOST ALLEGED PARANORMAL phenomena in one way or another depend on some sort of an information-gathering system. Whether the information is obtained from spirits, stars, or extraterrestrials, a method is needed to transmit it. On the other hand, during their daily struggle for survival, living organisms use a multitude of methods to gather as much information as possible from their environments. If we are to investigate an extraordinary claim, first we have to know what already exists in nature. Only then can we decide if the alleged phenomenon is feasible or not. For that reason it is important to know what types of communication patterns have evolved in nature, under what conditions they are used, and what their limitations are.

This short review-article is by no means comprehensive, but I will give a general classification of the communication methods employed in nature and then briefly examine some interesting examples in each class. Information gathering can be one-sided, such as the detection of the earth's magnetic field by an animal; or it can be mutual, such as fireflies flashing to each other. In this article no distinction will be made between these two types of information gathering. The terms *communication* and *to communicate* will be used to mean either type or both. The communication methods used in nature can be grouped into four classes according to the media used to carry messages: (1) chemical, (2) electromagnetic, (3) magnetic and electric, (4) mechanical. This classification is somewhat arbitrary but it nevertheless makes it easier for us to obtain an overall view of the subject.

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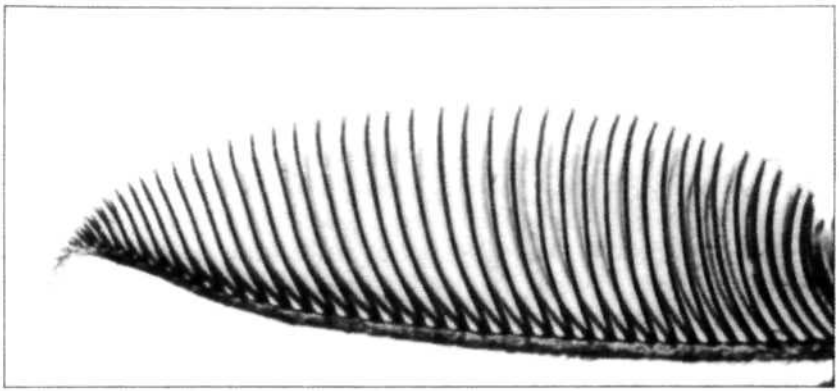


Photo by Aydin Örstan

FIGURE 1: The chemical receptors in insects are located chiefly on their antennae. The antenna of a male moth is shown here magnified approximately 12 times. It is broad and highly branched to detect minute quantities of sex attractants released by the females. Harvard biologist Edward Wilson once wrote: "It is conceivable that somewhere on other worlds civilizations exist that communicate entirely by the exchange of chemical substances that are smelled or tasted." (*Scientific American* 208, no. 5 [1963]:100).

## Chemical Communication

Using molecules to communicate is probably the most widely used method of information-gathering in nature. From the simplest life-forms like bacteria to human beings, all the living organisms constantly receive chemical messages from their environments and use molecules to send their own messages. Movement toward or away from chemicals, the so-called chemotaxis, has been well studied, especially in bacteria. In general, bacteria swim toward nutrient molecules and away from toxic molecules.[1] An interesting example of chemotaxis is found in certain microscopic organisms called "cellular slime molds." These amoebalike organisms, which consist of a single cell, live individually in soil and feed on bacteria. When there is a food shortage they begin to secrete special molecules that are then picked up by neighboring slime molds. The individuals that receive these molecular messages begin to move toward a central collecting point and soon individuals pile up to form a single sluglike mass that has now become a multicellular organism.[2] This whole process eventually results in the formation of spores, each containing an amoeba. These spores are then dispersed to other places, where the environment may be more hospitable.

Chemical communication is also commonly used among insects. For example, communication among individuals of termite colonies is based solely on the exchange of chemical signals. They also use a multitude of toxic and irritating chemicals to defend their nests against intruders.[3]

In the higher animals the sense of smell is nothing but the detection of

molecules in the air, and in our bodies most of the communication between the organs is carried by special molecules, such as hormones.

In addition to research on animals, evidence for communication among plants has recently been published.[4] When some plants are attacked by insects, they respond by increasing the concentration of certain toxic chemicals in their leaves.[5] These chemicals apparently control the insect populations. Baldwin and Schultz placed a number of poplar and maple seedlings in enclosures. They then damaged the leaves of some plants to imitate an insect attack and left a group of control plants untouched. When they later analyzed the leaves of these plants, they found some toxic chemicals in increased concentrations in both the damaged plants and their untouched neighbors. Apparently, the damaged trees had released certain messenger molecules into the air that were then picked up by the nearby undamaged trees and caused them to ready their defense mechanisms as if an insect attack were coming.

## Electromagnetic Communication

The ability to detect and respond to electromagnetic radiation is possibly the second most common way of communication in nature. Most lifeforms respond to light in one way or another. Some microscopic creatures, such as rotifers, which can barely be seen by the unaided human eye, themselves carry eyes, some of which contain a lens.[6] On the other hand, the largest eyes in the animal kingdom belong to the giant squid. The diameter of its eyes is about 25 centimeters (10 inches).[7]

Wavelengths used for communication are not limited to the visible part of the electromagnetic spectrum but extended to both sides of it. Rattlesnakes, pythons, and related snakes can detect infrared radiation by means of special organs called "pits," located in the front of the head.[8] They possibly use this ability to detect their warm-blooded prey at night. (Warm-blooded animals give off heat in the form of infrared radiation.) It is interesting to note that humans and possibly most other animals can also "detect" infrared radiation even though they do not possess special organs as do the snakes mentioned above. For example, when one sits in front of a burning fire, most of the heat one feels comes from the infrared radiation emitted by the fire. On the other hand, bees can see in both the ultraviolet and the visible regions of the electromagnetic spectrum.[9]

Contrary to the almost ubiquitous ability to detect light, only a handful of living organisms actually produce their own light. Among these organisms there are certain species of bacteria, marine planktons, fungi, earthworms, and the well-known fireflies. Fireflies use light signals to search for mates. Male fireflies flash their lights as they fly around and the females answer with their own lights from the ground. If a female can attract a male to the ground, they copulate. Each species of firefly has its

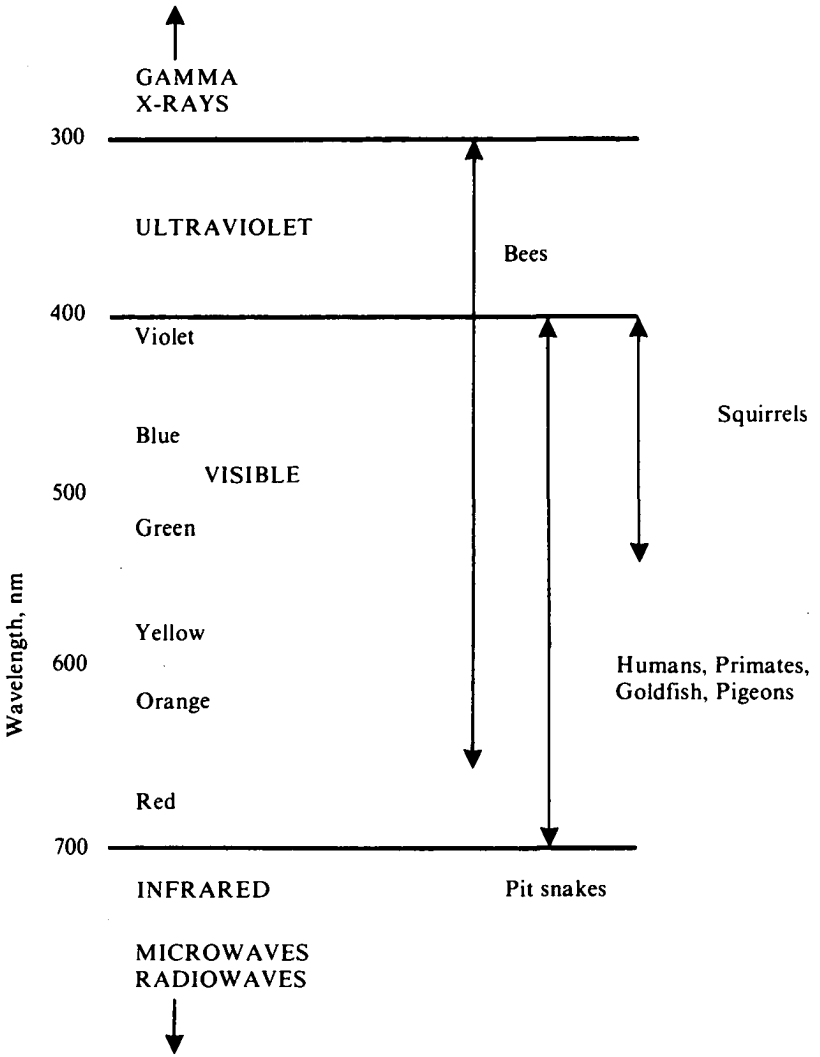



FIGURE 2: Electromagnetic spectrum and the color vision of some animals are shown in this diagram. Many other animals, for example, frogs, turtles, rats, cats, and cows, have also been shown to have some limited color vision. What is actually meant here by color vision is the ability of animals to distinguish between different wavelengths of visible light. (Color vision limits given are approximate values and have been compiled from K. von Frisch, *Bees, Their Vision, Chemical Senses, and Language,* rev. ed. [Ithaca: Cornell Univ. Press], 1971, and G. H. Jacobs, *Endeavor* [New Series] 7 [1983]:137.)

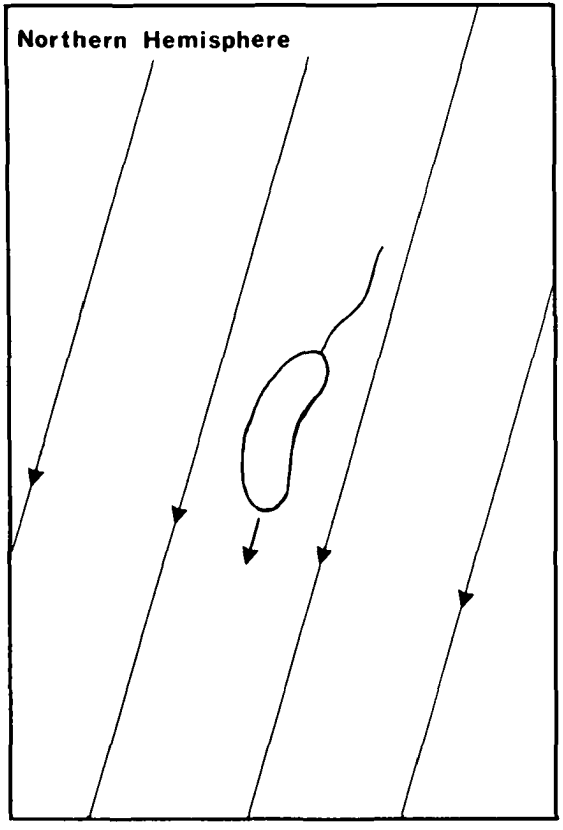
own signaling pattern. However, the carnivorous females of some species can mimic the female signals of other species and thus attract and prey on the males of those species.[10] Among the higher animals only certain fishes,

especially the deep-sea fishes, exhibit luminosity, which is due to the luminous bacteria that live symbiotically in their light organs.[11] Although the bacteria emit light continuously, some fishes have developed special devices, such as movable folds of skin, to turn the light on and off.[12]

## Magnetic and Electric Communication

There is growing evidence that many organisms are sensitive to magnetic fields and that they may be using the earth's magnetic field for navigation. Magnetic materials have been found in a variety of organisms, including certain types of bacteria, honey bees, pigeons, and dolphins.[13] But so far the reality of magnetic navigation has been established without doubt only in the case of the so-called magnetotactic bacteria discovered in 1975.[14] These bacteria, which live in fresh-water and marine sediments, carry particles of magnetite in them, which serve as compasses that orient them in the earth's magnetic field. Magnetotactic bacteria have been found in both the Northern and the Southern hemispheres, where the earth's magnetic field is inclined downward and upward, respectively. The ones that live in the Northern Hemisphere always have the north-seeking pole of their internal compasses pointed forward and therefore always swim northward or, in other words, downward. On the other hand, in the Southern Hemisphere the magnetotactic bacteria have the south-seeking pole of their compasses pointed forward and therefore always swim southward, but this again means downward. Because oxygen is toxic for these organisms, downward-directed motion (which takes them to the sediments where there is very little or no oxygen) is believed to be advantageous for their survival. There is also experimental evidence that homing pigeons, which normally use the sun to orient themselves, may also be using magnetic information to navigate under certain conditions, such as cloudy days.[15] Experimental results suggesting a possible magnetic sense in humans were reported by R. R. Baker in 1980.[16] But in subsequent experiments other investigators and Baker himself were unable to reproduce these earlier findings.[17]

Certain fishes, such as sharks and rays, respond to electric fields and possibly use an electric sense in addition to other senses to navigate and to locate their prey. Sharks have been shown to attack electrodes between which a current was passed.[18] On the other hand, Tributsch recently suggested a link between the alleged ability of animals to sense coming earthquakes and the increased static electricity in the air before an earthquake.[19] According to his hypothesis, this increased electricity somehow disturbs the animals and causes them to panic.



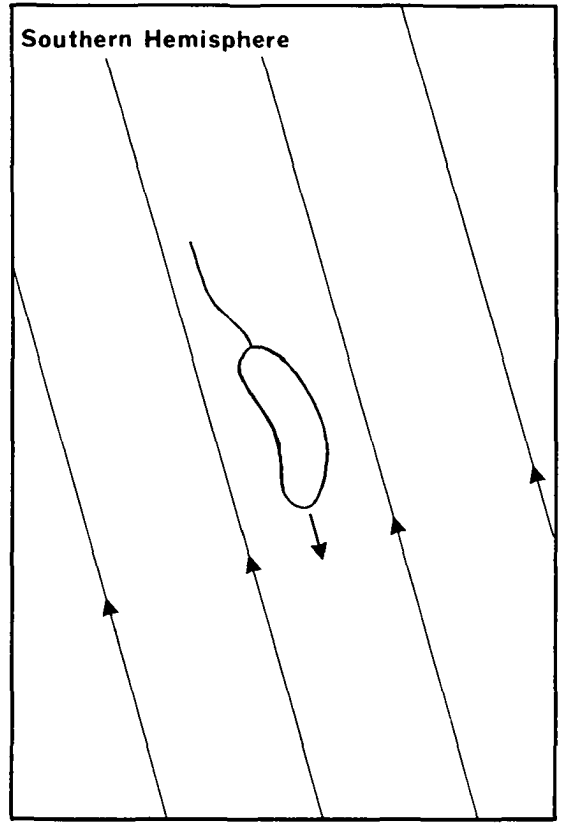




FIGURE 3: In the Northern Hemisphere, the magnetotactic bacteria are north-seeking, whereas in the Southern Hemisphere they are south-seeking. But, because of the inclination of the earth's magnetic field in both hemispheres, the bacteria swim toward the sediments. If a south-seeking bacterium were taken to the Northern Hemisphere, it would tend to swim upward toward the toxic surface waters. The arrows in the background indicate the direction of the earth's magnetic field in each hemisphere.

## Mechanical Communication

It is a well-known fact that bats and dolphins emit ultrasonic sounds and listen to the echoes returning from the world around them.[20, 21] Bats use this sonar system both to detect the obstacles in their way and to locate and catch insects in the air. However, some moths have ears that can detect the sounds emitted by the bats. When they hear the approach of a bat, they perform a variety of maneuvers, including sharp dives, turns, and loops, presumably to evade the bat.[22] Many spiders are capable of making sounds that are used for communication between males and females during courtship.[23] A remarkable method of communication is employed by a tropical spider to bring the males and females together. These spiders (genus *Cupiennius*) live on banana and agave plants. Male and female spiders communicate with each other by sending low-frequency vibrations through the leaves of the plants. In laboratory experiments it has been shown that male spiders can find the females on other leaves simply by following the vibrations transmitted by the females through the plant.[24]

Cockroaches are notorious for their quickness to sense and escape from danger. What makes them hard to catch, besides their well-developed legs, is their ability to detect air movement, such as that produced by a human hand approaching them.[25] This is done by means of some tiny hairs underneath the two appendages they have at their rear ends. As soon as they detect a wind, they turn away from the source and start running.

## Conclusion

The examples given above are only a small portion of the variety of communication methods employed in nature. Many equally interesting examples, such as the "dances" of bees,[26] have been omitted for brevity. But even this limited number of examples should make it clear that almost every possible means of communication is employed in nature. However, generalizations like this should not lead us to extraneous conclusions, stretched outside the limits of our knowledge. Trees may communicate with one another, but this does not necessarily mean that they are also self-conscious. A warning mechanism between trees may have evolved not because they worry about one another but because such a warning mechanism helps their species to survive. As already stated, knowing about nature will help us distinguish between the natural and the supernatural; in other words, between the possible and the impossible.

## Notes

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3. G. D. Prestwich, *Scientific American* 249, no. 8 (1983):78.

4. I. T. Baldwin and J. C. Schultz, *Science* 221 (1983):277.

5. J. C. Schultz and I. T. Baldwin, *Science* 217 (1982):149.

6. L. Margulis and K. V. Schwartz, *Five Kingdoms; An Illustrated Guide to the Phyla of Life on Earth* (San Francisco: W. H. Freeman, 1982), p. 188.

7. C. F. E. Roper and K. J. Boss, *Scientific American* 246, no. 4 (1982):96.

8. E. A. Newman and P. H. Hartline, *Scientific American* 246, no. 3 (1982):116.

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14. R. P. Blakemore and R. B. Frankel, *Scientific American* 245, no. 12 (1981):58.

15. R. Wiltschko, D. Nohr, W. Wiltschko, *Science* 214 (1981):343.

16. R. R. Baker, *Science* 210 (1980):555.

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18. A. J. Kalmijn, *Science* 218 (1982):916.

19. H. Tributsch, *The Sciences* 22 (1982):24.

20. G. Neuweiler, *Physics Today* 33 (1980):34.

21. B. Würsig, *Scientific American* 240, no. 3 (1979):108.

22. K. D. Roeder, *Scientific American* 212, no. 4 (1965):94.

23. G. E. Stratton and G. W. Uetz, *Science* 214 (1981):575.

24. J. S. Rovner and F. G. Barth, *Science* 214 (1981):464.

25. J. M. Camhi, *Scientific American* 243, no. 12 (1980):158.

26. G. H. Jacobs, *Endeavor* (New Series) 7 (1983):137.

# Book Reviews

## Inside the Velikovsky Affair

*Cosmic Heretics: A Personal History of Attempts to Establish and Resist Theories of Quantavolution and Catastrophe in the Natural and Human Sciences, 1963 to 1983.* By Alfred de Grazia. Metron Publications, P.O. Box 1213, Princeton, NJ 08542, 1984. 398 pp. $23, paper.

Henry H. Bauer

THAT IMMANUEL VELIKOVSKY remained so long a public figure is arguably due to the efforts of Alfred de Grazia in the 1960s. De Grazia was editor of the *American Behavioral Scientist,* which devoted a whole issue to the Velikovsky Affair, later expanded into a book (*The Velikovsky Affair—The Warfare of Science and Scientism*). The claim was pushed that, the substantive merits of Velikovsky's ideas aside, the affair revealed something seriously rotten in the state of science, most particularly in the lack of receptivity of science to new ideas. Accepting that claim, a number of humanists and social scientists engaged in public criticism of the scientific establishment for unfairness and for transgressing even the accepted norms of scientific behavior. The Velikovsky Affair continues to be cited as an example of science's unwillingness to consider alternatives to its current world-view. In *Cosmic Heretics,* de Grazia holds to that stance and also makes plain that he does not now leave aside the substantive merit of Velikovsky's ideas. He in fact believes Velikovsky's most general claim, that the earth and its inhabitants have been crucially influenced by recurring catastrophes of global extent, occasioned by extraterrestrial agents in very recent times (the past 15,000 years or so). That belief, or set of beliefs, de Grazia terms *quantavolution.*

Were this book simply an exposition of de Grazia's views about aspects of quantavolution, it would hardly warrant a review in *SI;* de Grazia himself recog-

*Henry H. Bauer is a professor of chemistry and dean of the College of Arts and Sciences, Virginia Polytechnic Institute and State University, Blacksburg. He is the author of* Beyond Velikovsky: The History of a Public Controversy *(1984).*

nizes that the audience for that is small. But *Cosmic Heretics* will be of wider interest because it has things to say about Velikovsky and his associates that cast a clearer light on some aspects of the Velikovsky Affair, particularly on what has remained a puzzle to pundits: Why were some of the reactions to Velikovsky so very extreme, for instance, the boycotting of a respected publishing house? In this review, I shall say a little about the book itself and its mistaken views regarding science and then focus on what it reveals about the Velikovsky matter.

The book's subtitle, "A Personal History," is accurate. There is much here of de Grazia's intellectual and even familial odyssey that will be of little interest to most readers, as will the material expounding quantavolution. One can readily criticize the author for assuming that his readers are interested, at this length, in his views and doings, particularly when he is something of a poseur. Thus he uses the device of writing of himself in the third person as "Deg," emphasizing the device by occasional use of "I" as the author of the book who is supposedly not Deg (for example, "Deg said—and I agree with him . . ."); he compounds that by incorporating some writing by Professor Joseph Grace, a historian of science, who turns out to be merely another pseudonym for Deg or de Grazia. Parts of the book reminded me of the film *My Dinner with André*—speculations and musings appropriate to the pub or coffeehouse but wearying to read at this length; few people, after all, have anything to say about cosmology or religion that still appears worth saying the next day. And in places Deg seems to reveal a touch of megalomania—implicitly when he presents himself as architect of the grand quantavolutionary synthesis, explicitly when he sees himself as superseding Velikovsky in that role.

Despite all that—which could be summarized by describing the book as self-indulgent—I found myself most of the time much in sympathy with its author. This is because he knows and acknowledges that he is a poseur and a day-dreamer, that he is fallible, and that it is his own choice to work at his avocation, cut off from the mainstream of academe and its support and funding. Moreover, there is often a fine choice of words, the turn of a new and cogent phrase, and a pleasantly mellow attitude. Finally, it is the case that de Grazia has been a successful social scientist and grantsman, and he displays an authentic understanding of many aspects of academe.

The practice of science, however, is not one of the aspects that he understands well. The misunderstandings of science exemplified in the Velikovsky Affair, and particularly by de Grazia and other supporters of Velikovsky, I have discussed at considerable length elsewhere (*Beyond Velikovsky: The History of a Public Controversy,* University of Illinois Press, 1984); so I shall venture only brief general criticisms here.

First, de Grazia does not understand how the content of science is generated, how difficult it is to make a new contribution in even a narrow specality. Changes occur from the ground up, not by a direct altering of the Weltanschauung. The victory of uniformitarianism over catastrophism was not the result of a theological and metaphysical war. It was forced on science by the accumulating and converging progress of knowledge in many sub-specialties of geology, biology, paleontology, and radiochemistry. If the victory is to be reversed, it will result again from the accumulation of needs in many disciplines, not from the quantavolutionist claim that its world-view is superior.

Second, and not unrelated, de Grazia's understanding of science as a social

activity is ambiguous. On the one hand, he knows that scientists are human and that their activity displays the same human imperfections as does any other intellectual and social endeavor; on the other hand, he suppresses that knowledge when he maintains that science *ought to be* different. At heart, de Grazia is apparently an old-style positivist, believing that the true facts are out there to be discovered if only scientists will be truly empirical and open-minded. He regrets that inherent merit is not recognized, only the happenstance of achievement within the conventional wisdom—finessing the question, How and by whom might inherent merit be recognized and judged in the absence of generally acknowledged achievements? (Just so fallaciously does Chargaff feel that his "scientifically correct" approach to learning the structure of DNA was more worthy than the flamboyant and unprincipled assault by Crick and Watson, while the rest of the world knows that this is sour grapes only.)

De Grazia's main thrust in the Velikovsky Affair was to criticize the reception of new ideas by science, maintaining that this question could be discussed without reference to the substantive merits of those new ideas. He seems to take that view still, even though it is demonstrably untenable. Should science react to the idea of faster-than-light travel, or of teleportation, or of a flat earth, for example, as it reacts to the notion that fundamental particles have also wavelike properties? Many features of "new ideas" determine how they will be received, in particular how plausibly they fit with existing reliable knowledge. Velikovsky's notions about celestial events were and are most implausible; the evidence he adduced was not drawn from physics or astronomy or geology or any other relevant science; and so the manner in which his ideas were received tells us nothing in general about how science reacts to new ideas, only about how it reacts to poorly supported, implausible ideas ventured by one who has no standing in science.

Most of the interest of this book for most people will lie in its vignettes of Velikovsky and some of his supporters; and it is predictable that Velikovskians will be enraged. I myself, on the other hand, found it reassuring that de Grazia, from personal knowledge, attests the accuracy of some of the inferences I drew (in *Beyond Velikovsky*) only on the basis of the published literature. Some of the Velikovskians were simply camp followers, attracted to an enterprise that was anti-science, anti-establishment, and offered hope to some fundamentalists. (Robert Bass and C. J. Ransom, according to de Grazia, were or are creationists.) The schisms that I envisaged would develop strongly after Velikovsky's death were apparently already very strong before: Velikovsky's supporters "fought like alley-cats" among themselves. Lewis Greenberg, editor of the Velikovskian journal *Kronos,* would not permit the British deviationist journal to publish a paper delivered at a *Kronos*-sponsored conference, even though *Kronos* itself was not going to publish it because of its deviations from Velikovsky's dogma. Quite recently, *Kronos* refused to review de Grazia's quantavolutionary *Chaos and Creation* and refused him access to its mailing list.

But most upsetting for the Velikovskians will be de Grazia's matter-of-fact discussion of Velikovsky's character. Velikovsky demanded absolute loyalty from his associates but did not always return the favor. He was not satisfied to be just in general the one who established the catastrophist viewpoint; he insisted that all his detailed ideas be accepted, and he banished those who had revisionist ideas: the founders of *Pensée* and the British Society for Interdisciplinary Studies, for example; and when de Grazia established a foundation intended to sponsor

Velikovskian studies, Velikovsky wanted its mission to be entirely restricted to pushing his own work. During the Velikovsky Affair, Velikovsky and his supporters claimed that he remained above the fray and eschewed polemics. De Grazia reveals that, in fact, Velikovsky orchestrated the controversy, using others to present his views and arguments. For instance, the letter in *Science* in the early 1960s that credited Velikovsky for accurate predictions was written at Velikovsky's instigation, and he supplied much of the actual content. Velikovsky was reluctant to recognize the contributions of others, refused to acknowledge his precursor catastrophists, and became depressed when, in 1940, he came upon Ignatius Donnelly's *Ragnarok* (whose approach and conclusions are so strikingly similar to those of Velikovsky's *Worlds in Collision*).

Velikovsky had an overwhelming need for recognition that could only be satisfied "by mobs of admirers . . . or . . . a great prize like the Nobel Prize. . . ." And in this search for acclaim and recognition, Velikovsky displayed a degree of intellectual dishonesty in "pretending to have supporters among the authorities who did not support him so strongly." (De Grazia perpetrates similar offenses, it seems to me, in his dropping of such names as Paul Kurtz, for acknowledging that wrongs were done to Velikovsky, Stephen Jay Gould, as being a quantavolutionist, and saying that Carl Sagan's "writings and utterances on occasion signify a suppressed readiness to accept general quantavolution.") De Grazia does not hang back from psychological explication of Velikovsky's character and behavior. He was intensely narcissistic, had paranoid tendencies, and exemplified the authoritarian character. De Grazia writes all this in a quiet, matter-of-fact manner, acknowledging these realities in a man who was de Grazia's friend and whom de Grazia respected for his intellectual powers, for the lucidity and originality of some of his insights; but it is predictable that the Velikovskians will be outraged, for they have not been prone to admit any human failings on Velikovsky's part.

De Grazia seems not to realize that his own account explains the furious reaction by some scientists in the 1950s to the widely publicized *Worlds in Collision*. Velikovsky presented himself as superseder of Darwin and Newton. He was waiting "for designation to the top rank of authorities." The fuss was *not* caused by Velikovsky's suggestion of ideas that science could not countenance. It came about because Velikovsky wanted instant recognition as *the* authority on science when he had no standing in any science, no qualifications, had not paid his dues through recognized achievements, and presented his ideas in the form of a popularly published book rather than in technical articles. The absurd gap between Velikovsky's pretensions and ambitions on the one hand, and his lack of qualifications and evidence for his views on the other, could well explain the sarcastic outrage of some members of the scientific community. Even the much-criticized Watson, for example, was less brash than that. He merely wanted to win the Nobel Prize and went about it in correct fashion by working at a problem important enough to warrant such recognition—but he did not aim for "designation to the top rank of authorities" by exploding into the limelight of the popular media with claims that he had superseded Mendel and Morgan.

The Velikovsky Affair remains important, in my view. Not, however, because it exemplifies the resistance of science to new ideas, but because it illustrates how very wrong are the ideas of so many people about what science is, how it is carried on, how reliable are its findings. In fact, the media and the public have

serious misconceptions, the writers of popular science perpetrate significant errors, scientists themselves have a naive impression of what they are doing, and the humanists and social scientists have not yet presented an authentic and integrated historical, philosophical, sociological, psychological understanding of science and its relation to technology and the wider culture in which it flourishes. Such understanding is sorely needed—to make possible sensible science policy, for example. The Velikovsky Affair can serve to show at least that a massive task of education is called for. From the somewhat narrower perspective of *SI*, if we are not clear about what science is, then we also cannot be clear in our criticism of pseudoscience. •

# Video Recorder of the Mind

*Visions * Apparitions * Alien Visitors.* By Hillary Evans. Aquarian Press, Wellingborough, Northants NN8 2RQ, England, 1984. 320 pp. £ 9.95, cloth. (Available in U.S. from Arcturus Book Service, 263 N. Ballston Ave., Scotia, NY 12302, $18.50 plus postage.)

Gordon Stein

HILLARY EVANS is one person who has closely examined the literature on UFOs, apparitions, and other paranormal phenomena while keeping an open mind. He tries, as a scientist would, to fit his observations (or those of others) into a general hypothesis that can then be tested. What is even more refreshing about Evans's approach is that he bites off rather large chunks of observations to fit into his hypothesis. For example, he tries to tie together as analogous phenomena such seemingly diverse things as visions of the Virgin Mary, demons, sightings of fairies, sightings of ghosts, close encounters with supposed alien visitors, and the "Men in Black" associated with events occurring *after* UFO sightings.

There are a number of problems here for the skeptic. The literature on hauntings and visions of a religious nature is very large, with thousands of people having had these experiences. Whether we believe that the experience claimed really originated inside the head of the perceiver or not, we *must* acknowledge that some experience *has* occurred that *seemed* real to the person who had it. Merely dismissing it as a hallucination will not do. We have to try to explain what happened, although it is of course not necessary to invoke supernatural or

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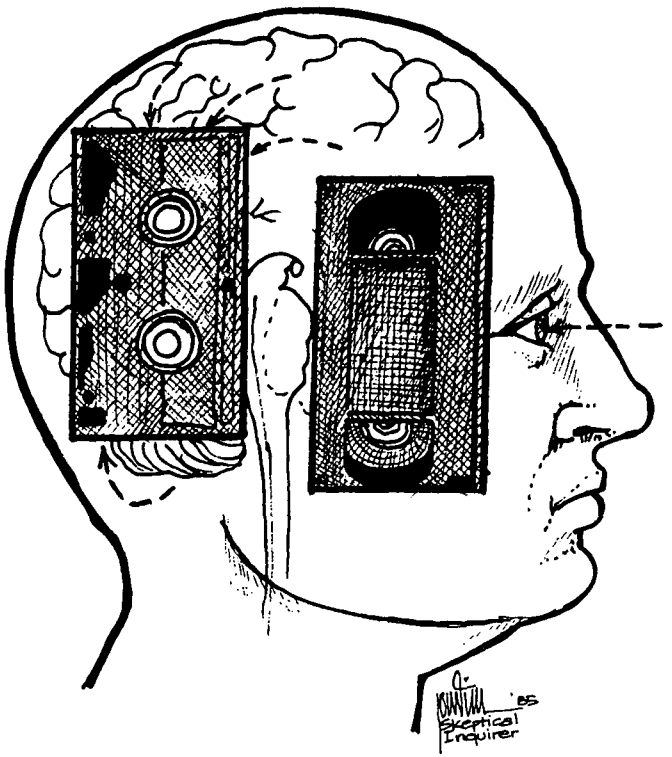


probably even paranormal explanations. It is here that Evans both fails and succeeds in part.

It is difficult to give full justice to his explanation in a short summary, but basically he feels that the experiences these people have had are real *to them.* At the same time they do not correspond to an outside, objective reality. Evans uses the analogy of a video recorder. It is as if we are videotaping what our senses take in from the outside world, while at the same time our brains are producing their own, different videotape. This internal videotape is composed of things that are important to us emotionally and is the product of our imagination. It may contain an admixture of our experiences as well. There are times (e.g., when we are under great stress or merely "daydreaming,") when the internally composed videotape overrides the one that records outside events. *That* produces a very real set of images to the the person experiencing it—so real that it cannot be distinguished from an outside "reality."

Evans's hypothesis is quite neat. It explains a lot of things that seem otherwise inexplicable. It is testable, although only with some difficulty, and also falsifiable—two requirements of a validly fashioned scientific hypothesis. Another real advantage to the skeptic (and to the scientist, if he wants to play by the actual "rules" of science) is that this hypothesis does not invoke supernatural forces or "psi phenomena." True, Evans has one small "gap" in his explanation for which he later tries to invoke a bit of psi. That has to do with what he calls projected images, or shared hallucinations. Such experiences must be explained by some

hypothesis, but I think he has gone too far here. Perhaps someone can save his hypothesis by putting a "patch" on it to explain how more than one person can simultaneously have the same visual or auditory "hallucination."

This book is far superior to the run-of-the-mill works on any of the phenomena that Evans discusses. He presents the purported evidence, some of it quite convincing, and says, in effect, that people of good character swear that these things have happened to them. That, of course, does not mean that these things happened outside of their minds, but we have still got to offer some kind of an explanation. Evans then goes on to do exactly that, and without invoking the paranormal. That is quite an accomplishment. Behavioral scientists should read this book, attempt to test Evans's hypothesis, and see if they can improve it. Others will also find the book a fascinating attempt to organize and explain some of the phenomena that face us, especially those that have been so far inexplicable. •

# The Missionary of Creationism

*A History of Modern Creationism.* By Henry M. Morris. Master Book Publishers, San Diego, Calif., 1984. 382 pages. $9.95 paperback, $12.95 hardcover.

Robert Schadewald

IT IS FITTING that the first book-length history of modern creationism has been written by the man most responsible for the movement. Henry Madison Morris coauthored *The Genesis Flood,* the 1961 book that crystallized the creationist movement. He helped found the Creation Research Society, the Creation Science Research Center, and the Institute for Creation Research, and at one time or another headed all three organizations. A prolific author, he has (depending upon your point of view) either (a) written about a dozen books on "creation science" or (b) published the same material under a dozen different titles.

Those who know Morris as the "great recycler" will be surprised by the amount of new information in his *History of Modern Creationism.* True, the first two chapters, Morris's version of the history of evolution, are the same old stuff. Chapter 10, a look at the present and future, is partly recycled from *Acts & Facts.* But chapters 3 through 9, which chronicled the creationist reaction to modern science from the Scopes trial to the present, contain valuable new material.

Morris's history of evolution is unconventional. In previous works, he has

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*Robert Schadewald writes frequently on the creationism movement.*

suggested that Satan *personally* came down to the top of the tower of Babel to reveal evolution to the Babylonian King Nimrod and his priests. Here he merely equates evolution with "ancient paganism" (p. 19). Morris spends several pages impugning the character, intelligence, and scientific reputation of Charles Darwin. (Even if we ignore *Origin of Species* and *The Descent of Man*, Darwin probably published more genuine, original, and meaningful scientific research than all of the ICR fellows put together.) To support his innuendos of scientific plagiarism, Morris falsely claims that Erasmus Darwin, Charles's grandfather, proposed "that new species are developed by natural selection" (p. 32). He suggests that Charles Lyell, the devout Christian who fathered modern geology, was an atheist who deliberately misrepresented the geological evidence and hatched a cunning plot to overthrow the Bible. Evolution is depicted as the source of racism and anti-Semitism, an astounding claim for a Baptist who grew up in Texas in the 1920s and 1930s.

Early twentieth-century creationism is treated more reliably. Morris provides valuable data on creationist pioneers like George McCready Price, Harry Rimmer, Arthur I. Brown, and R. E. D. Clark. For the first time in Morris's voluminous writings, Seventh-day Adventist George McCready Price gets proper credit for his influence and ideas. Many early and little-known creationist books are described in what amounts to an annotated bibliography. Morris tells of the in-fighting that led the creationist organizations that preceded the Creation Research Society to abandon extreme biblical literalism for some form of "old-earth creationism" or even (in the case of the American Scientific Affiliation) theistic evolution.

Another worthwhile part is Morris's narrative of modern events, especially those in which he played a part. Morris has been in the thick of the action since 1946, when he published *That You Might Believe*. He knows everybody who is anybody in creationism, and he knows who did what to whom. Unfortunately, he is highly selective with details. He spends several pages discussing his departure from Virginia Polytechnic Institute, but, except for telling us (p. 153) that "the evolutionary/humanistic establishments on campus" wanted him canned because they considered him and his *Genesis Flood* "an embarrassment to the university," we are left in the dark. Morris names no names, nor does he mention any specific charges made against him. Likewise, he makes his stormy split with the Seagraves clan and the Creation Science Research Center seem almost smooth. Obviously, he tells us only what he wants us to know, but the information he does provide is often not available elsewhere.

The final chapter is "The Coming Battle for Creation." Morris sees creationism under heavy assault by the evil forces of humanism "as we approach the end of this present age" (p. 307). Morris believes the American Humanist Association is leading the attack on creationism. He sees enemies all around: the news media, scientific organizations, and those Christians who accept evolution as God's method of creation. He nevertheless expects science and education to be restructured in a creationist context—"if the Lord does not return soon" (p. 333). (Morris's obsession with the imminent End of the World is a minor theme that recurs throughout the book.)

The most valuable part for students of creationism is Morris on Morris, but this requires some reading between the lines. Morris details for us the honors he has received, the job offers he has turned down, and miscellaneous personal

accomplishments. He makes peevish and historically inaccurate attacks on Darwin, Lyell, and other great scientists of the past. He evens scores with modern enemies like Kenneth Miller of Brown University, whom he calls "an effective demagogue on the platform" (p. 320). (Miller has repeatedly drubbed Morris on the debate platform. In an *Acts & Facts* reference to these debates, Morris referred to Miller as a scientist "of quite ordinary attainments in [his] own particular field.") He backhands creationist rivals like Pastor Walter Lang of the Bible-Science Association, who he says "is not what one would call a careful scholar" (p. 216). (Lang is at least as good a scholar as Morris.) Referring to an incident in which his colleague Duane Gish falsely stated on national television that certain chicken and bullfrog proteins are closer to human proteins than the corresponding chimpanzee proteins, Morris terms PBS's presentation "fraudulent" (p. 316). All of this is in fulfillment of Morris's divine mission.

Morris is first and foremost a missionary, and he has been all of his adult life. Upon graduation from Rice Institute, he worked as an engineer with the International Boundary and Water Commission in El Paso and proselytized at a local army camp. During World War II, he instructed cadets at Rice Institute, where he "quickly felt the burden of reaching these students for Christ" (p. 94). He studied hydraulics, geology, and mathematics at the University of Minnesota "primarily because of their importance in the study of the Deluge. . . ." (p. 136). Upon getting his Ph.D. in hydraulic engineering, Morris tried unsuccessfully to land a professorship at the Afghan Institute of Technology, "officially as an engineering teacher . . . unofficially as a missionary to that closed Moslem country" (p. 130). He quotes (p. 100) his 1951 preface to *The Bible and Modern Science*, where he wrote, "The purpose of this book, very frankly and without apology, is to win people to a genuine faith in Jesus Christ as the eternal Son of God and their personal Saviour. . . ." Commenting on this passage, Morris now says, "That same paragraph, though originally written almost 35 years ago, could still apply to every book I have written since, even those which are strictly scientific in content." A subhead in the final chapter is "The Gospel of Creation." As part of their "ministry," ICR speakers try to emphasize the Gospel "that Christ Himself is the true Creator of all things. . . ." (p. 256). This is not always possible, but "even when circumstances prevent the full presentation of the Gospel, as in a creation/evolution debate on a university campus. . . ." (p. 257) many are eventually led to full conversion.

In summary, *A History of Modern Creationism* is vintage Morris, a characteristic mixture of naiveté and guile. On the one hand, Morris thoroughly exposes the emptiness of his own pretensions about creationism being science. On the other hand, he demonstrates that he is far more familiar with anti-creationist materials than I had thought, meaning that his continued use of decisively refuted arguments cannot be attributed to ignorance. The book is useful for its historical information about the growth of modern creationism and for what it reveals about the man most responsible for the movement. •

# Some Recent Books

Brandon, Ruth. *The Spiritualists: The Passion for the Occult in the Nineteenth and Twentieth Centuries.* Prometheus Books, 700 E. Amherst St., Buffalo, NY 14215. 1984. 315 pp. $11.95, paper. New trade paperback edition. Reviewed by Martin Gardner in our Winter 1983-84 issue.

Stiebing, William H., Jr. *Ancient Astronauts, Cosmic Collisions, and Other Popular Theories About Man's Past.* Prometheus Books, 700 E. Amherst St., Buffalo, NY 14215. 1984. 217 pp. $19.95, cloth; $9.95 paper. History professor evaluates some popular hypotheses about man's early history. Covers nine broad subjects: The Deluge, Atlantis, cosmic catastrophism, ancient astronauts, pyramid mysteries, early voyagers to the Americas, and "popular theories and the 'establishment.' " Written to fill the vacuum left by most scholars about these subjects, who "seldom mention them in their books or lectures, nor . . . bother to indicate what is wrong with the methodology, evidence, or arguments that are used to support such hypotheses."

Weinberg, Stan, editor. *Reviews of Thirty-One Creationist Books.* National Center for Science Education, 156 E. Alto Vista, Ottumwa, IA 52501. 1984. 73 pp. $5.50, including postage, paper. Scientists and teachers summarize and critique the major creationist works critically but fairly. Written for those who need to deal with creationists effectively.

—*Kendrick Frazier*

### Videotape

Cole, John, executive producer and writer. *The Case of the Texas Footprints.* ISHI Films, P.O. Box. 2367, Philadelphia, PA 19103. 27 minutes. 1984. Color videotape. With Dr. Steven Schafersman, Dr. Ronnie Hastings. Dr. Laurie Godfrey; directed by Dr. Pia Nicolini. Refutes creationist claims that human footprints are found alongside dinosaur tracks in Cretaceous rocks in Texas. Supported in part by CSICOP. Rental $40, purchase $120 from ISHI Films.

# Articles of Note

Blackmore, Susan J. "A Psychological Theory of the Out-of-Body Experience." *Journal of Parapsychology,* 48(3):201-218, September 1984. Detailed pre-

sentation of Blackmore's naturalistic explanation of the OBE. She suggests that although normally our chosen model of external reality is built upon sensory input, when we are deprived of sensory information, e.g., under stress, this can break down, allowing other models, built from information in memory and imagination, to take over. Memory models are often more abstract and schematic than perceptual models and may take a bird's-eye view. "The theory suggests that if such a model becomes more stable than the input model, it takes over as 'reality.' The imagined world then seems real, and an OBE has occurred."

Dixon, Bernard. "Inherit the Wind." *New Scientist*, September 13, 1984, p. 29. Review of Lyall Watson's latest "hotch-potch of confusion and inaccuracy," his book *Heaven's Breath*. "As with the mish-mash of science and pseudo-science in *Superminds*, the reader receives little guidance through a jungle of anecdotes and journal references, well-established truths and half-baked speculations."

Doyle, Rodger Pirnie. "Health Superstition." *Free Inquiry* (3151 Bailey Ave., Buffalo, NY 14215), Fall 1984, pp. 35-43. Addresses the broad topic of superstitions about health, including why people subscribe to them and criteria for judging medical theories.

Gardner, Martin. "Perpetual Motion: Illusion and Reality." *Foote Prints*, 47(2):21-35, 1984 (a magazine devoted to subjects of general scientific interest published by Foote Mineral Co., Route 100, Exton, PA 19341). Entertaining and well-illustrated romp through the history of the quest for a perpetual-motion machine.

Gould, Stephen Jay. "On the Origin of Specious Critics." *Discover*, January 1985, pp. 34-42. First major analysis and dissection of the arguments of anti-biotechnology activist Jeremy Rifkin contained in his book *Algeny*. Gould divides his critique into five charges: (1) "Rifkin does not understand Darwinism, and his arguments refute an absurd caricature, not the theory itself. . . ." (2) "Rifkin shows no understanding of the norms and procedures of science. . . ." (3) "Rifkin does not respect the procedures of fair argument. He uses every debater's trick in the book to mischaracterize and trivialize his opposition. . . ." (4) "Rifkin ignores the most elementary procedures of fair scholarship. . . ." (5) "*Algeny* is full of ludicrous, simple errors." Each of these charges Gould supports with abundant examples and discussion. Concludes Gould: "I regard *Algeny* as a cleverly constructed tract of anti-intellectual propaganda masquerading as scholarship. Among books promoted as serious intellectual statements by important thinkers, I don't think I have ever read a shoddier work." Gould adds that this is a "damned shame" because "I do not disagree with Rifkin's basic plea for respecting the integrity of evolutionary lineages. But devious means compromise good ends, and we shall have to save Rifkin's humane conclusion from his own questionable tactics." Must reading for those following the issues in biotechnology and those concerned about anti-scientific arguments in biology.

"The Great Hudson Valley UFO Mystery." *Discover*, November 1984, pp. 18-24. Investigative report showing that the wave of nighttime lights in the sky north of New York City was a hoax caused by pilots flying their light planes in formation. The pilots, flying out of Stormville and other local airports, even called themselves "The Martians." They caused various effects

by changing their formations from crescents and circles to crosses. UFO advocates are furious about the matter. They, predictably, claim that the aircraft flights explain only *some* of the UFO sightings. With two sidebar reports: "The Psychological Need for UFOs" and "A Scientific Look at UFOs."

Herbert, Roy. "Do You Believe in Magic?" *New Scientist,* October 18, 1984, p. 64. Writer wittily recounts some of his experiences with friends who confront him with anecdotal reports of paranormal wonders.

Lemley, Brad. "The Last UFO War." *The Washington Post Magazine,* Oct. 28, 1984, pp. 14-17. Adroitly balanced feature article on the contrasting views and approaches toward UFOs of "The Skeptic," Philip J. Klass, and "The Believer," Bruce Maccabee.

Pine, Ronald H. "But Some of Them *Are* Scientists, Aren't They?" *Creation/Evolution* (P.O. Box 146, Amherst Branch, Buffalo, NY 14226). Issue 14, Fall 1984. Valuable article on how to grapple with the fact that some creationists have Ph.D.'s in science and are perceived as scientists while promulgating pseudoscientific arguments. Pine defines "scientists" not by credentials but according to whether the person plays by the rules of science. Pine says some scientific creationists have never been scientists; others were once but aren't now; still others "may play the game of science when they're working on their specialty, and even do it well enough to make a living at it, and then do pseudoscience on their off hours." Includes sections on "What Science Is and Isn't" and "How to Spot a Pseudoscientist."

"Quackery: A Brief Manual." *Harvard Medical School Health Letter.* 9(12):1-2, October 1984. Offers general evaluative guidelines to readers who encounter advertisements for products that are supposed to cure various ailments, improve one's sex life, grow hair, or produce weight loss. Gives nine signs of fraudulent advertising (e.g. "It uses words like 'miracle,' 'cure,' or 'breakthrough' ").

Rotton, James, and I. W. Kelly. "Much Ado About the Full Moon: A Meta-Analysis of Lunar-Lunacy Research." *Psychological Bulletin,* March 1985. Authors combined data from 37 studies in an examination of relationships between phase of the moon, type of lunar cycle, sex, publication practices, geographic features, and several types of lunacy, including mental hospital admissions, psychiatric disturbances, crisis calls, homicides, and other criminal offenses. A few statistically significant relationships emerged, but effect size estimates indicated that phases of the moon accounted for no more than one percent of the variance in activities usually termed lunacy. Alleged relationships between phases of the moon and behavior could be traced to inappropriate analyses, a failure to take other (e.g., weekly) cycles into account, and a willingness to accept any departure from chance as evidence for a "lunar effect."

Russell, Gordon W., and Manjula Dua. "Lunar Influences on Human Aggression." *Social Behavior and Personality,* 11(2):41-44, 1983. Psychologists tested a hypothesis linking aggression to lunar influences by studying league records of all 426 hockey games played during a recent World Hockey League season. Despite use of multiple measures, no support for lunar influence was found.

Simpson, George Gaylord. "Mammals and Cryptozoology." *Proceedings of the*

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*American Philosophical Society,* 128(1):1-19, 1984. Detailed critique of cryptozoology—the "science" of unknown and of hidden or undiscovered animals—by the eminent vertebrate paleontologist (who died October 6, 1984, in Tucson). His discussion is timely in light of recent semi-scientific "searches" for mermaids in Papua New Guinea and living dinosaurs in Africa, not to mention continuing claims of Bigfoot and Loch Ness monster sightings. Simpson argues that cryptozoology relies excessively on circumstantial and testimonial evidence. Discussion by some of its proponents has demonstrated gullibility and a propensity toward wishful thinking. Simpson also reviews in detail the discovery of new animal groups. Only two families of living mammals have been discovered during the present century, and they belong to the two most abundant orders, bats (Chiroptera) and rodents (Rodentia). This fact "holds out little promise of other discoveries soon, if ever, of equally or more distinct taxa of mammals." (See also *Scientific American*'s summary of this paper, "The Sign of the Beast," July 1984, p. 68. J. Richard Greenwell, secretary of the International Society of Cryptozoology, also in Tucson, has submitted a response to its report of Simpson's criticisms.)

Smith, R. Jeffrey. "An Endless Siege of Implausible Inventions." *Science,* Nov. 16, 1984, p. 817. Update on the case of inventor Joseph Newman and his "Energy Generation System Having Higher Energy Output Than Input." This case will have to be watched closely now that a former Patent Commissioner—to the surprise of many—has stated that evidence indicated the output of Newman's motor exceeded the external input energy.

Spaeth, Anthony. "When Healers Meet In the Philippines, Things Get Bloody." *Wall Street Journal,* Dec. 11, 1984, pp. 1, 19. Report on the First Philippine International Conference on Paranormal Healing. Mostly descriptive, with modest amounts of between-the-lines skepticism. The author notes that analyses of the tissue "extracted" by psychic surgeons often show that it is animal, not human, and that blood often doesn't match the patient's blood type. Too bad, however, that the article wasn't more hard-hitting against the notorious fraud of "psychic surgery."

Thompson, James C., and Kay A. Flowers. "Pseudoscience, Creationism, and the Library." *Catholic Library World,* November 1984, pp. 176-178. Rice University librarians consider the dilemma librarians face in dealing with pseudoscientific materials. They note that many excellent resources (they list examples) are becoming available from which librarians can provide a balance to the flood of publications making paranormal and creationist claims. "It is better in the long run to seek this balance than to shun what is scientifically dubious."

Wallack, Joseph Michael. "Testing for the Psychokinetic Effect on Plants: Effect of a 'Laying on' of Hands on Germinating Corn Seed." *Psychological Reports,* 55:15-18 (1984). A claimed psychokinetic effect on plants from the "laying on" of hands of a self-claimed "psychic healer" was tested in three procedures. Analyses of variance yielded nonsignificant effects in all three experiments.

*—Kendrick Frazier*

# From Our Readers

*The letters column is a forum for views on matters raised in previous issues. Letters should be as brief as possible. They should be typed and preferably double-spaced. Letters are subject to editing for space and clarity. Not all of those submitted can be published. Address letters to: Editor,* SKEPTICAL INQUIRER, *3025 Palo Alto Dr. N.E., Albuquerque, NM 87111.*

## The Koestler Bequest

There are some people who never learn from experience but stay all their lives stuck fast in their prejudices. The late Arthur Koestler was certainly not one of them, nor, I hope, am I. I am not ashamed, therefore to admit that I sometimes change my mind, Martin Gardner (*SI,* Fall 1984) quotes at length from a 1975 book review of mine in an effort to show that I am unfit to be allowed any say in how my university uses the Koestler bequest.

No doubt a lot of wishful thinking went into the writing of that review. But, ten years ago, it did not seem so silly to suppose that Geller might yet prove to be the powerful psychic we need who, in the right hands, might transform the whole situation with respect to parapsychology. What we did not realize at the time was that—for whatever reason—Geller was simply not interested in cooperating in any serious research. In the event, we shall probably never know the whole truth about Uri Geller, although each of us is fully entitled to his own opinion. I would still maintain, however, that there has been enough evidence during the past ten years to suggest that the Geller-effect as such may well be real.

I am an avid reader of the skeptical literature, including the writings of Martin Gardner, but I cannot help it if I do not always find this literature very convincing. Consequently, I have kept an open mind about the paranormal, and I sincerely hope that our new Koestler Professor, when he or she is appointed, will do likewise and will not be cowed by the more strident debunkers. On the other hand, I am always ready to collaborate with Randi and others in exposing fake claims.

As regards our "Tim," after we circulated that report by my student, Deborah Delanoy, to which Martin Gardner alludes, he made a full confession. It transpired that he is a keen young magician and his admiration for Randi led him to think that it would be fun to try fooling the parapsychologists at Edinburgh. He is no longer sure that it was such a clever idea, and he has apologized for wasting our time.

John Beloff
Department of Psychology
University of Edinburgh
Edinburgh, Scotland

*Martin Gardner replies:*

*When I read Professor Beloff's first paragraph I had high hopes that he would go on to demonstrate how his mind has changed by telling us that he now considers Uri Geller a fraud. But no. To my amazement he says no such thing. He is disappointed only because Geller will not cooperate on "serious*

*research." There is nary a hint that Beloff comprehends why Geller so refuses. On the contrary, Beloff still maintains that metal bending by the mind may be genuine! Because Beloff has not seen fit to disclose how his mind has altered—for example, does he still take Ted Serios seriously?—I see no reason to suppose that he has departed in any substantive way from the strong opinions I quoted from his 1975 paper.*

## Some questions about study

Regarding Professor Woods's report on changing beliefs in the paranormal (*SI*, Fall 1984), I would like to believe that a group of some 30 students did in fact become significantly more critical of the paranormal issues included in the course. My own skepticism, however, raises some questions: (1) Was this a credit course? Was performance graded, and if so, how? What were the students' expectations about grades and/or credit? (2) Were students generally aware of Professor Woods's views, perhaps from his activities in conducting the original survey and its discussion with the Academic Policy Committee and the College Legislature?

I recall a discussion with my peers, when I was in the fifth or sixth grade, about the strategy of intentionally scoring poorly on tests given early in the school term—not only to get assigned to easier class subgroups, but also to show substantial improvement with little effort by the end of the term, thus receiving high marks. Now, as a college professor some 40 years later, I think that this strategy has occurred to others too. If students in Professor Woods's class felt their grade might be influenced by a shift of their views toward his, I don't think it would be very hard to select the "right" answers on the Belief-in-the-Paranormal instrument.

C. W. Lee
California State University
Carson, Calif.

*Paul J. Woods responds:*

*Dr. Lee has raised some legitimate and important questions. In view of our serious concerns over the consequences of beliefs in the paranormal, I welcome the opportunity to reply. Any strategies that can help people think more rationally and face the challenges of the* real *world deserve critical assessment regarding their effectiveness.*

*To respond to Dr. Lee's questions:*

*1. The course was offered in our independent-study four-week mid-year "Short-Term." Grades and credits do not enter into Merit Point Ratios, but a student must complete four "Short-Terms" to graduate. Hence it was not an extracurricular activity, but it was also not quite the same level as a graded, merit-point, regular semester course.*

*Performance was graded on a pass/fail basis, and a* pass *depended exclusively and entirely upon the student's fulfilling the reading and activity "contract" of 30 hours/week. Students were expected to read the text, Zusne and Jones's* Anomalistic Psychology: A Study of Extraordinary Phenomena of Behavior and Experience, *various books on reserve in the library, and the* SKEPTICAL INQUIRER, *but were free to read other material and engage in other related activities as well. Detailed logs were turned in weekly.*

*Responses to the Belief-in-the-Paranormal Scale had no effect whatsoever on the pass/fail decision. Fulfilling the reading/activity contract was all that was necessary to pass, and the students knew this. In fact, the post-test wasn't even scored until some time later.*

*2. This question is harder to answer, but I really don't think I had a very "high profile" on campus around this issue. My impression is that many students were eager and excited about the course because they thought that as a psychologist I was going to provide them with support for their pre-existing beliefs. Therefore, I do not at all suspect that anyone was "intentionally scoring*

*poorly" so that they could show "substantial improvement." In fact, results from the pre-test (i.e., a high percentage of acceptance of paranormal claims) were quite consistent with my previous survey and consistent with reports of others from around the country. Thus it appears unlikely that these students were lying about their beliefs in the paranormal before the course began.*

*As I said in my article, the text by Zusne and Jones is excellent and the impact of it, along with the SKEPTICAL INQUIRER and the other books, was substantial. My perception is that the students gradually developed an eye-opening awareness of the fact that they had been duped, that they had often assumed paranormal explanations for normal phenomena, and that they had uncritically accepted some reports of paranormal phenomena when there was no evidence that any event had even occurred.*

*Whether my reported experience with this course represents a generally valid observation remains to be tested. I urge my professional colleagues to go forth and do so.*

## Contradictory question

Do you agree or disagree that "ESP is an unusual gift that many persons have and should not be confused with the elaborate tricks used by entertainers"? Obviously the quoted statement is contradictory (*unusual* gift that *many* persons have) and conjunctive. Moreover, it falsely insinuates that all tricks used by entertainers are elaborate.

Experimenter Paul J. Woods badly blundered in using this item to determine a subject's belief in ESP.

Paul Alan Berent
Pinole, Calif.

## Quantum physics

I was disappointed in Steven Shore's comments (*SI*, Fall 1984) on *The Dancing Wu Li Masters* by Gary Zukav. If the dubious links with Eastern mysticism in it are ignored, the book is an exceptionally clear qualitative exposition of twentieth-century physics. Furthermore, it mentions paranormal phenomena only in passing, a fact no reader of the article would ever deduce. I remain skeptical of the paranormal and in particular of quantum-theoretical attempts to explain it, but I feel he has unjustly distorted the content of a worthwhile book. Zukav is also right to emphasize the revolutionary implications for physics of the current interpretation of modern physics. This interpretation rests subtly on certain aspects of probability theory, and a Bayesian approach may yield different meanings, but this is irrelevant to the present argument.

The Copenhagen interpretation of quantum mechanics has encouraged confusion between uncertainty of knowledge based on inference from partially known data and uncertainty based on intrinsic probabilistic dynamics of the theory. Certainly no nonmystical interpretation includes paranormal phenomena. For a description of what the world would look like if quantum effects were apparent macroscopically, see the "Mr. Tompkins" books of George Gamow.

Anthony Garrett
Magdalene College
Cambridge, England

## Writing over heads

One of the reasons for the superstition explosion is that writers who promote the dogmas of supernaturalism, occultism, and the pseudosciences use language that is easily understood by anyone, while scientists, with some exceptions, write in such highfalutin language that their material never reaches those who need it most.

Mario Bunge, in his "What is Pseudoscience?" makes this distinction (*SI*, Fall 1984, p. 41) while writing over

the heads of the average person on the street. Even with a university degree I found it tough ploughing through his highly academic style to squeeze out his meaning.

The objective of publications like the SKEPTICAL INQUIRER should be to reach the masses, which means everyone who can read. James Randi, Kendrick Frazier, and Martin Gardner are among those of your writers who do write for everyone to understand.

Elver A. Barker
Denver, Colo.

## Principles of science

I am pleased to see that the SKEPTICAL INQUIRER is moving away from the almost exclusive focus on exposés to include a variety of articles about the principles of science and thought. That promises to educate the reader to do his own thinking in specific cases, and it protects the magazine from what happens to so many publications—recycling nearly the same material every two seasons. Also, *SI* seems to be in the process of becoming more legitimately skeptical as it tries to avoid the danger of dogmatism potential in its own positions.

I was especially struck by Stephen Toulmin's essay in the Fall 1984 issue. It was a model of clear, carefully organized prose on a difficult conceptual topic. Anyone who can make of language such a simple map to explore such complex terrain has a real gift, something that is increasingly rare in academic circles.

Please invite him to write more and continue with the widening editorial policy.

Frank Edmund Smith
Cary, Ill.

## More exposés

Although P. Naslin (*SI*, Letters, Fall 1984) feels it boring to read about exposés of hoaxes and quacks, I feel the SKEPTICAL INQUIRER doesn't cover enough on specific incidents. My complaint is that too much coverage is given to the theory of pseudoscience.

By all means, bring on the everlasting litany of hoaxes.

Phil Andretta
Little Ferry, N.J.

## Perception of similarities

Wyatt, Posey, Welker, and Seamons in "Natural Levels of Similarities Between Identical Twins and Between Unrelated People" (*SI*, Fall 1984) have their thesis reinforced by a further perception of similarities between unrelated people.

All too often our friends speak of new-found sweethearts as "so similar: we like the same things, we believe the same things, we agree on everything." Like those of twins, these similarities are often ascribed to astrology ("He's a Leo! Of course he's perfect for me!") or other untestable phenomena ("We were fated for each other!").

This suggests that the perception of similarity is of such psychological importance that those involved lose sight of the likelihood that cultural similarities and coincidence, rather than the supernatural, are involved.

Atanielle Annyn Noel
Ramona, Calif.

## Not Maimonides Experiments

I was pleased to see (*SI*, Fall 1984) so much space given to the AAAS symposium, but I am puzzled by one phrase in your description of my talk. Why did you insert (p. 4) the phrase "of *experiments at Maimonides*"? The Akers review included only one experiment at Maimonides.

The way the sentence reads, it appears as if 90 percent of the experi-

ments at Maimonides suffered from one or more flaws. In other words, the statement makes me look foolish because I am endorsing a report that found 90 percent of my research to be flawed!

Stanley Krippner
Saybrook Institute
San Francisco, Calif.

*Kendrick Frazier replies:*

*My reference to Charles Akers's review should have made clear that both Krippner and I were referring to Akers's* entire *critique of, in Krippner's words, "55 well-known psi experiments." It was 90 percent of* these *that Akers found suffered from one or more of six flaws.*

## Airline UFOs

I was struck by the article by Bruce Martin in which a woman mistook a 737 for a UFO (*SI,* Fall 1984). I had a similar, even stranger experience, in daylight. (I write mystery novels and used this experience as the basis for the first chapter of one of them.)

Briefly, while stopped at a stop sign, I looked up, saw a large object flying toward me shaped like the classic UFO—two white saucers rim to rim with a shiny silver dome on top—noticed that my car radio had dissolved into static, and stalled the car. This object bore no resemblance whatsoever to an airplane. I was flabbergasted, as you might expect, but not nearly so much as I was about to be. I followed the flight of the object, which curved to my left (I was driving east), passed behind a tree, and emerged as a Northwest Airlines 747, with red tail and all, at a distance that would match its length to a foot ruler held at arm's length. Only then did I hear the engines. The car radio came back. No magic revival of the engine, however; I'd popped the clutch and had to start it myself.

Now, suppose that I, who have lived under a flight path for 11 years and seen airliners at a variety of heights and angles daily, had shut my eyes instead of observing the further flight of the plane? Nothing could have convinced me that that thing was an airplane if I hadn't seen it myself! I went back at the same time of day for several days, trying to duplicate the effect, but without luck. I suspect that it was a matter of sun reflection and that the angles between plane, sun, and observer had to be nearly precisely what they were for the effect to be seen. *Looking* for the effect, I did fleetingly see it from three herring gulls, with sun, me, and gulls in nearly the same relation as sun, me, and 747. Moral: When you see a UFO, keep looking.

L. A. Taylor
Minneapolis, Minn.

## Effects of psi beliefs

Your articles on the possible psychological and sociological effects of popular belief in the paranormal are addressing important issues. I noticed that Dr. Hovelmann (*SI,* Spring 1984), in his critique of Dr. Tobacyk's article, cites Marcello Truzzi's reply to a letter of mine in which he supports the contention that there is no evidence that the belief in psi might engender social chaos (*Zetetic Scholar,* 10, pp. 151-152). *SI* readers might note that Truzzi's reply concludes that "occultism" is more dangerous to "religious orthodoxy" than to science—which scarcely quells the fear of possible social chaos. Both Truzzi and Hovelmann have their points, but they neglect evidence indicating that occult revivals have been linked to radical and violent social movements, such as that presented in *The Occult Underground* by James Webb. At least Dr. Westrum, the associate editor of *ZS,* allows that scientific "anomalies" have been deemed potentially threatening to society (*ZS,* 10, pp. 89-102). But this

falls short of the contention that radical social movements have actually used anomalies to challenge the social order.

Hovelmann also refutes the nebulous link between Nazism and occultism, with the debatable contention that the significance of ideology pales in comparison with the influence of socio-economic factors. I have yet to find any reputable scholarly evidence that the rise of Nazism was aided by an occult revival. But Nazism is commonly linked to the occult cosmologies of Romanticism, and Barrington Moore's otherwise politico-economically oriented study, *Social Origins of Dictatorship and Democracy*, also links dictatorial trends to similar, "organic" cosmologies.

I hope *SI* continues to address these matters and succeeds in provoking "zetetics" into a serious discussion of what, in some respects at least, should be of common concern.

Christopher C. Scott
McLean, Va.

## Psychics missed assassination

Did any of America's leading "psychics" predict the assassination of India's Indira Gandhi?

I have all the predictions of Jeane Dixon and ten other psychics and/or astrologers for the year 1984, as published in the tabloids *The Star* and the *National Enquirer*. Not one of them even mentions Mrs. Gandhi in their hundreds of predictions.

Norman B. Reed
Norristown, Pa.

## Local Organizations

(groups with aims similar to CSICOP's)

Arizona: Tucson Skeptical Society (TUSKS), Ken Morse, 2508 E. 23rd St., Tucson, AZ 85713.

California: Bay Area Skeptics, Robert A. Steiner, Chairman, Box 659, El Cerrito, CA 94530. Southern California Skeptics, Al Seckel, Chairperson, P.O. Box 7000-39, Redondo Beach, CA 90277.

Colorado: Colorado Organization for a Rational Alternative to Pseudoscience (CO-RAP), Béla Scheiber, Director, P.O. Box 7277, Boulder, CO 80306.

Minnesota: Minnesota Skeptics, Robert W. McCoy, 549 Turnpike Rd., Golden Valley, MN 55416.

New York: The New York Committee for Skeptical Inquiry, Andrew Skolnick, 60 West 83rd St., New York, NY 10024.

Northwest Skeptics, Michael R. Dennett, Chairman, Washington Coordinator, 4927 S.W. 324th Place, Federal Way, WA 98003; John Merrell, Oregon-Idaho Coordinator, 4885 S.W. 152nd Ave., Beaverton, OR 97007.

Ohio: South Shore Skeptics, Page Stephens, 1346 W. 64th St., Cleveland, OH 44102.

Pennsylvania: Paranormal Investigating Committee of Pittsburgh (PICP), Richard Busch, Chairman, 5841 Morrowfield Ave., #302, Pittsburgh, PA 15217.

Texas: Austin Society to Oppose Pseudoscience (A-STOP), W. Rory Coker, President, P.O. Box 3446, Austin, TX 78764. Dallas Society to Oppose Pseudoscience (D-STOP), James P. Smith, Science Div. of Brookhaven College, Dallas, TX 75234. Houston Society to Oppose Pseudoscience (H-STOP), Steven D. Schafersman, Chairman, P.O. Box 541314, Houston, TX 77254.

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# The Committee for the Scientific Investigation of Claims of the Paranormal

The Committee for the Scientific Investigation of Claims of the Paranormal attempts to encourage the critical investigation of paranormal and fringe-science claims from a responsible, scientific point of view and to disseminate factual information about the results of such inquiries to the scientific community and the public. To carry out these objectives the Committee:

- Maintains a network of people interested in critically examining claims of the paranormal.
- Prepares bibliographies of published materials that carefully examine such claims.
- Encourages and commissions research by objective and impartial inquiry in areas where it is needed.
- Convenes conferences and meetings.
- Publishes articles, monographs, and books that examine claims of the paranormal.
- Does not reject claims on a priori grounds, antecedent to inquiry, but rather examines them objectively and carefully.

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